# THE AMERICAN JOURNAL OF PHYSIOLOGY

**VOLUME 168** 

January-March 1952

#### BOARD OF PUBLICATION TRUSTEES

W. O. FENN, Chairman

W. F. HAMILTON R. F. PITTS

#### EDITORIAL BOARD

A. C. BURTON J. H. COMROE, JR.

H. E. Essex A. GILMAN

F. G. HALL D. J. INGLE

L. N. KATZ E. M. LANDIS D. P. C. LLOYD

F. D. W. LUKENS DAVID RAPPORT

J. E. THOMAS L. M. TOCANTINS

MILTON O. LEE, Managing Editor

THE AMERICAN PHYSIOLOGICAL SOCIETY Washington, D. C.

COPYRIGHT 1952, BY
THE AMERICAN PHYSIOLOGICAL SOCIETY, INC.

PRINTED IN THE UNITED STATES OF AMERICA BY WAVERLY PRESS, INC., BALTIMORE, MARYLAND

## Contents of Volume 168

## No. 1. JANUARY 1952

	GENERALIZED ADRENOCORTICAL ATROPHY IN HYPOPHYSECTOMIZED DOGS AND COR-
1	RELATED FUNCTIONAL STUDIES N. Lane and R. C. de Bodo
20	Ammonia Excretion in Adrenal Insufficiency F. D. Harris, A. F. Hartmann, Jr., D. Rolf and H. L. White
20	EFFECT OF DESTRUCTION OF THYROID GLANDS BY RADIOACTIVE IODINE ON PANCREATIC DIABETES IN THE DOG William B. Neal, Jr., Lester R. Dragstedt, Georgiana R. Rogers and Gordon McKeague
	A Comparison of Effects of Morphine and Barbital on Volume Distribution of Potassium
33	Russell A. Huggins, Richard A. Seibert and Alpha R. Bryan
37	Non-Depot Delayed Acting Insulin Fritz Bischoff
44	In $Vivo$ Uptake of Cations by Two Types of Exchange Resins $Evan \ W. \ MeChesney$
55	Compensatory Changes in the Rat Following Removal of Electrolytes by Intraperitoneal Dialysis Robert E. Semple
66	Excretion of Solutes Injected Into the Renal Artery of the Dog Allan V. N. Goodyer and William W. L. Glenn
77	Renal Secretion of Thiosulfate in the Dog James Foulks, Paul Brazeau, Ethol S. Koelle and Alfred Gilman
86	Apparent Volumes of Distribution of p-Aminohippurate and Creatinine in the Dog Joseph Greenberg, Irving L. Schwartz, Morton Spinner, Lawrence Silver and Nina Starr
93	Renal Tubular Sodium Metabolism in Sodium Deficiency States  Julian Frieden, Lester Rice and Edward I. Elisberg
97	Effect of Increased Ureteral Pressure on Renal Function $Leonard\ Share$
107	Renal Excretion of Creatinine in Necturus. A Reinvestigation by Direct Analysis of Glomerular and Tubule Fluid for Creatinine and Inulin $Phyllis\ A.\ Bott$
114	EFFECT OF DIET UPON BODY GROWTH AND ORGAN SIZE IN THE RAT AFTER PARTIAL NEPHRECTOMY T. Addis, R. W. Lippman, W. Lew, L. J. Poo and W. Wong
121	Effect of ACTH on Incorporation of Labeled-Histidine Into Tissue Proteins in Male Adult Mice Alfred Novak
1 26	Effects of Ammonium Chloride Acidosis on Glucose Tolerance in Dogs Bruce Mackler, Henrik Lichtenstein and George M. Guest
131	A Study of Anuria Occurring During Apnea Under Diffusion Respiration Frank A. Kopecky, Chalmers J. Rayburn, Richard W. Whitehead and William B. Draper
138	EFFECT OF VARIOUS BILE ACIDS ON HYPERCHOLESTEREMIA FOLLOWING BILIARY OBSTRUCTION IN THE RAT Sanford O. Byers and Meyer Friedman

Traumatic Shock. XX. The Course of Hemorrhagic Shock in Dogs Treated by Peritoneal Irrigation or by an Artificial Kidney  Howard A. Frank, Edward D. Frank, Stanley Jacob, Philip Glotzer, Lester Persky, Edward W. Friedman, Alvin Schwartz, Alexander M. Rutenburg,	
Samuel Milrod and Jacob Fine Traumatic Shock. XXII. Irreversibility of Hemorrhagic Shock and VDM Hypothesis. Failure of Ferritin to Affect Arterial Pressure and Survival Period of Hepatectomized-Nephrectomized Dogs Howard A. Frank, Stanley Jacob, Edward W. Friedman, Alexander M. Rutenburg, Philip Glotzer and Jacob Fine	140
One-Stage Hepatectomy in the Dog, Preserving the Inferior Vena Cava  Howard A. Frank and Stanley W. Jacob	156
ACTION OF DOC AND SERUM ON THE FROG HEART S. Hajdu and A. Szent-Györgyi	150
Action of Digitalis Glucosides on Isolated Frog Heart S. Hajdu and A. Szent-Györgyi	171
Cardio-Inhibitory Response to Vasopressor Compounds in Rabbits With Sino-Aortic Nerves Sectioned $W.B.$ Youmans, $H.V.$ Good and $A.F.$ Hewitt	176
$\begin{array}{ll} \text{Inhibitory Effect of Vasopressin on Cardio-Accelerator Mechanism After} \\ \text{Sino-Aortic Denervation} & W.~B.~Youmans,~H.~V.~Good~and~A.~F.~Hewitt \\ \end{array}$	182
Swelling of Tail of Mouse Following Varying Periods of Ischemia $Gerald\ Nudell\ and\ Roger\ M.\ Reinecke$	189
Dynamic Changes in Arterial Pressure Pulses Produced by a Simulated Saccular Aneurysm ${\it Robert  H.  Whittlesey}$	102
Effects of Pulmonary Blood Flow and Distention on Capacity of Intrapulmonary Vessels $Alton\ Ochsner,\ Jr.$	200
Increased Resistance to Autonomic Ganglionic Blockade by Tetraethyl- ammonium Chloride and Pentamethonium Iodide in Experimental Neuro- genic Hypertension Irvine H. Page and J. W. McCubbin	208
Influence of Temperature on Vagal Inhibition and Liberation of Acetyl- choline in Frog Hearts Bal K. Anand	218
MECHANISMS OF PRODUCTION OF THE FIRST HEART SOUND Aldo A. Luisada, Mariano M. Alimurung and Leonard Lewis	226
MECHANISM OF PRESSOR RESPONSE TO INCREASED INTRACRANIAL PRESSURE Simon Rodbard and Hiroshi Saiki	234
DENERVATION TIME AND MUSCLE RESTITUTION G. Clinton Knowlton	245
EFFECT OF 2,4-DINITROPHENOL UPON ANAEROBIC GLYCOLYSIS IN RAT CEREBRAL CORTEX SLICES  C. N. Peiss, John Field and Victor E. Hall	248
Conditioned Avoiding Response in Pupples $W.\ T.\ James\ and\ Deore\ J.\ Cannon$	251
Bromides in Spinal Fluid and Serum S. I. Patrick and G. S. Eadie	254
Sleep Produced by Electrical Stimulation of the Thalamus K. Akert, W. P. Koella and R. Hess, $Jr$ .	260
No. 2. FEBRUARY 1952	

DISTRIBUTION OF PROTEINS AND ENZY	MATIC ACTIVITIES IN ELECTROPHORETIC COM-	
PONENTS OF CANINE PANCREATIC	JUICE	
.4llan	L. Grossberg, S. A. Komarov and Harry Shay	269

#### CONTENTS OF VOLUME 168

Amylase Activity of Canine Pancreatic Juice Jerome M. Waldron	283
Hypoprothrombinemia in Biliary Fistula Dogs Induced by Minute Doses of Dicumarol $John\ B.\ Field$	287
PRODUCTION AND EXCRETION OF CHOLESTEROL IN MAMMALS, VI. BILE ACID ACCUMULATION IN PRODUCTION OF HYPERCHOLESTEREMIA OCCURRING AFTER BILIARY OBSTRUCTION  Meyer Friedman and Sanford Byers	292
Production and Excretion of Cholesterol in Mammals. VII. Biliary Cholesterol: Increment and Indicator of Hepatic Synthesis of Cholesterol.  Sanford O. Byers and Meyer Friedman	297
Intestinal Absorption of Sodium Chloride Solutions as Influenced by Intra- luminal Pressure and Concentration D. D. Blickenstaff, D. M. Bachman, M. E. Steinberg and W. B. Youmans	303
Absorption of Water and Chloride (Rat) E. F. Adolph and J. P. Northrop	311
Physiological Adaptations to Body-Water Excesses in Rats $E.\ F.\ Adolph\ and\ J.\ P.\ Northrop$	320
Removal of Intravenously Injected Fat from the Circulation and Its Appearance in the Thoracic Duct Lymph $H.\ C.\ Meng$	335
Effect of Repeated Acute Exposures to High Altitude on Longevity in Rats $Paul\ D.\ Altland\ and\ Benjamin\ Highman$	345
Effects of Hypophysectomy, Growth Hormone and Thyroxine on Phosphatases of Tibia, Liver, Spleen and Kidneys of Rat  James C. Mathies, Eleanore D. Goodman and Lucille Palm	352
Comparative Metabolic Effects of Ingestion of Water or 1 Per Cent Sodium Chloride Solution in the Rat with a Thoracic Duct Lymph Fistula Marvin M. Shrewsbury, Jr. and William O. Reinhardt	366
Acid-Soluble and Acid-Insoluble Fractions of Glycogen in the Chick Embryo $J.\ Szepsenwol\ and\ M.\ H.\ Partridge$	375
Body Weight, Fasting and Forced Feeding after Whole Body X-Irradiation Willie W. Smith, Isabelle B. Ackermann and Falconer Smith	382
INFLUENCE OF PROTEIN AND CALORIE INTAKE UPON CERTAIN REPRODUCTIVE FUNC- TIONS AND CARCINOGENESIS IN THE MOUSE Y. Chiung Puh Lee, Joseph T. King and Maurice B. Visscher	301
INFLUENCE OF VARIATIONS IN ENVIRONMENTAL TEMPERATURE AND THYROID STATUS ON SEXUAL FUNCTION IN YOUNG FEMALE MICE  Found Atalla Soliman and E. P. Reineke	400
EFFECTS OF VARIOUS CONCENTRATIONS OF ADRENOCORTICOTROPHIC HORMONE ON ELECTRICAL ACTIVITY OF BRAIN AND ON SENSITIVITY TO CONVULSION-INDUCING AGENTS  Clara Torda and Harold G. Wolff	406
SPECIFICITY OF HEMOLYTIC REACTION IN VITAMIN E-DEFICIENT ERYTHROCYTES  Catharine S. Rose and Paul György	414
EFFECT OF PHYSICAL VARIABLES ON ADHESION IN CLOTS FORMED FROM FIBRINGGEN AND THROMBIN  Peter R. Morrison and Arthur Seiler	421
TRAUMATIC SHOCK. XXI. EFFECTIVENESS OF ANTIBIOTIC IN EXPERIMENTAL HEMOR- RHAGIC SHOCK Howard A. Frank, Slanley W. Jacob, Fritz B. Schweinburg, Jacob Goddard and Jacob Fine	430
PROJECTION OF AFFERENT FIBERS FROM MUSCLES AND JOINTS TO THE CEREBRAL	

Effect of Tetraethylammonium Chloride on Mammalian Skeletal Muscle Action William J. Atkinson, Jr.	442
Spread of Excitation in Skeletal Muscle: Some Factors Contributing to the Form of the Electromyogram  L. W. Jarcho, C. Eyzaguirre, B. Berman and J. L. Lilienthal, Jr.	446
Effect of Subthreshold Currents on Isometric Tension and Phosphocreatine Content of the Frog Gastrocnemius  Jerome W. Gersten	458
Effect of Barbiturates on Renal Function in the Dog Kirkwood F. Glauser and Ewald E. Selkurt	460
Pressure Flow Relations in the Kidney. Alleged Effects of Pulse Pressure $Emil\ R$ . Ritter	480
Effects of Alterations of Renal Arterial Pressure on Sodium and Water Excretion  D. D. Thompson and R, F. Pitts	400
Effect of Chronic Salt Depletion on Blood Pressure of Renal Hypertensive Dogs J. Frieden, J. Stamler, W. Hwang, K. Kuramoto and L. N. Katz	500
Factors Affecting Proteinuria in the Rat Hellen Linkswiler, May S. Reynolds and C. A. Baumann	504
Factors Influencing Stroke Volume: A Cinefluorographic Study of Angio- cardiography Robert F. Rushmer and Nathan Thal	500
Effect of Adrenaline, Nor-Adrenaline and Hemoglobin on the ph of the Urine $\begin{tabular}{ll} J.~U.~Schlegel \end{tabular}$	522
Cardiac Changes Induced by $O_2$ at High Pressure, $CO_2$ and Low $O_2$ , as Manifest by the Electrocardiogram $William\ V.\ Whitehorn\ and\ John\ W.\ Bean$	528
Capillary Permeability to Lipid-Soluble Molecules Eugene M. Renkin	538
Studies on Permeability. VII. Effect of Several Substrates and Inhibitors of Acetyl Cholinesterase on Permeability of Isolated Auricles to Na and K. $W.\ C.\ Holland,\ Clara\ E.\ Dunn\ and\ Margaret\ E.\ Greig$	546
No. 3. MARCH 1952	
Electrokymographic Densogram as a Record of Systolic Discharge Gordon C. Ring, G. J. Navis and L. L. Bell	557
Effect of Acute Cardiac Tamponade Upon Respiratory Metabolism of the ${\bf Dog}$	565
Oxygen Consumption of Cardiac Muscle During Shock Walter J. Burdette	575
EQUIPOTENTIAL DISTRIBUTION FOR THE VARIOUS INSTANTS OF THE CARDIAC CYCLE ON THE BODY SURFACE OF THE DOG Alexander Mauro, Louis H. Nahum, Rajinder S. Sikand and Hyman Chernoff	584
Changes in Blood and Circulation of Dogs Following Explosive Decompression to Low Barometric Pressures John P. Kemph and Fred A. Hitchcock	502
Subcutaneous Pressure Developed in Dogs Following Explosive Decom- pression to 25 or 30 mm. Hg  John P. Kemph, Floyd M. Beman and Fred A. Hitchcock	601
A Possible Gastric Secretory Inhibitor in Canine Gastric Juice  George R. Livermore, Jr. and Charles F. Code	603

CONTENTS OF VOLUME 108	V 11
Influence of Respiration on Arterial, and Right and Left Ventricular Pressures $D.\ M.\ MacCanon\ and\ Steven\ M.\ Horvath$	612
Radiomanganese Studies on the Mouse, Rat and Pancreatic Fistula Dog William T. Burnett, $Jr.$ , Robert R. Bigelow, Allyn W. Kimball and Charles W. Sheppard	620
Survival of Rats Adrenal ectomized After X-Irradiation $Abraham\ Edelmann\ and\ Seymour\ Katsh$	626
Presence and Identity of Vasotropic Substances in Blood of Rats Sub- jected to Acute Whole Body Roentgen Ray Irradiation Thomas J. Haley, Richard F. Riley, Idamac Williams and Margaret R. Andem	628
Influence of Arterial Pressure on Intrarenal Pressure  H. G. Swahn, Victor Moore and A. V. Montgomery	637
Renal Excretion of Cation in the Dog During Infusion of Isotonic Solutions of Lithium Chloride	1
James Foulks, Gilbert H. Mudge and Alfred Gilman	642
Effects of Chronic Peripheral Venous Congestion on Renal Sodium Excre- tion Julian Frieden, Lester Rice, Edward I. Elisberg, Bernard Eisenstein and L. N. Katz	650
Effect of Cholinesterase and Choline Acetylase Inhibitors on the Potassium Concentration Gradient and Potassium Exchange of Human Erythrocytes  Isaac M. Taylor, John M. Weller and A. Baird Hastings	658
Stability of Glomerular Filtration Rates With Uncomplicated Water Diuresis in Rabbits $Roy\ P.\ Forster$	666
Independence of Capillary Filtration and Tissue Clearance Chester Hyman, Samuel I. Rapaport, Albert M. Saul and M. E. Morton	674
Respiration Associated With Phagocytosis of Brucella Francis A. Beall, Edwin M. Lerner, II and Joseph Victor	680
Reflex Respiratory Stimulation by Chest Compression in the Dog George A. Culver and Hermann Rahn	686
Artificial Sixteen-Hour Day Activity Rhythms in the White Rat $Ludvig\ G.\ Browman$	694
Effects of Continuous Exposure to Cold on Organ Weights, Blood and Urine Chemistry of Rabbits $Douglas\ Waugh$	698
Effect of an Adrenolytic Drug on the Erythrocyte and Leukocyte Response to Epinephrine and Nor-Epinephrine in Normal Dogs  Lyle H. Hamilton and Steven M. Horvath	704
A DIFFERENCE IN THE REPRESENTATION OF AUDITORY SIGNALS FOR THE LEFT AND RIGHT EARS IN THE ISO-FREQUENCY CONTOURS OF THE RIGHT MIDDLE ECTO-SYLVIAN AUDITORY CORTEX OF THE DOG Archie R. Tunturi	712
Substrate and Enzyme Distribution in Cells and Cell Fractions of the Nervous System L. G. Abood, R. W. Gerard, J. Banks and R. D. Tschirgi	728
Oxidative Esterification of Phosphate by Neural Tissue $L.\ G.\ Abood\ and\ R.\ W.\ Gerard$	739
Electrical Response of the Acoustic Cortex of the Dog to Pure and Complex Audio Frequencies $L.\ L.\ Boyarsky$ and $L.\ J.\ Peacock$	742

ACTIVITY OF ACETYLCHOLINE SYSTEM IN CEREBRAL CORTEX OF VARIOUS UNANES-

Donald B. Tower and K. A. C. Elliott

747

THETIZED MAMMALS

EVIDENCE FOR AN ATP-ACTOMYOSIN COMPLEX IN RELAXED MUSCLE AND ITS RE- SPONSE TO CALCIUM JONS Emil Bozler	760
Physical Chemistry of Contractile Process in Muscle. I. A Physicochemical Model of Contractile Mechanism $Milton\ J.\ Polissar$	766
Physical Chemistry of Contractile Process in Muscle. II. Analysis of Other Mechano-Chemical Properties of Muscle $Millon\ J.\ Polissar$	782
Physical Chemistry of Contractile Process in Muscle. III. Interpretation of Thermal Behavior of Stimulated Muscle Millon J. Polissar	793
Physical Chemistry of Contractile Process in Muscle. IV. Estimates of Size of Contractile Unit Milton J. Polissar	80
Blood Glucose and Food Intake in Normal and Hypophysectomized, Allonan- Treated Rats Jean Mayer and Margaret W. Bates	812
Effect of Cortisone on the Positive Potentials Induced by Glucosamine and Amino Purines in the Synovial Cavities of Dogs C. I. Reed	820
Intravenous Injections of Water-Soluble Desonycorticosterone Glucoside in Intact and Adrenalectomized Dogs  W. W. Swingle, Joseph Perlmutt, Patrick Seay and Elliott Collins	82

## Index to Volume 168

NOTE: Individual and types of drugs may be found under the heading, Drugs. Cross references are as follows: Cardiac, see Heart; Cerebral cortex, see Brain; Epinephrine, see Adrenaline; Hepatic, see Liver; Hypothermia, see Cold; Hypoxia, see Anoxia; Plasma, see Blood; Pulmonary, see Lung; Renal, see Kidney.

ABOOD, L. G., R. W. GERARD, J. BANKS AND R. D. TSCHIRGI. Substrate and enzyme distribution in cells and cell fractions of the nervous system, 728.

ABOOD, L. G. AND R. W. GERARD. Oxidative esterification of phosphate by neural tissue,

Absorption, water and chloride, 311

Acetylcholine

cerebral cortex and, 747 vagal inhibition and, 218

Acetylcholinesterase, inhibitors of, 546 Acid-soluble and acid-insoluble, fractions of glycogen, 375

ACKERMANN, ISABELLE B., 382

Acoustic cortex, electrical response, 742 Actomyosin complex, relaxed muscle and, 760

Addis, T., R. W. Lippman, W. Lew, L. J. Poo and W. Wong. Effect of diet upon body growth and organ size in rat after partial nephrectomy, 114

Adenohypophysis, adrenal cortex and, 1 Adenosinetriphosphate, relaxed muscle and, 760 ADOLPH, E. F. AND I. P. NORTHROP.

Absorption of water and chloride (rat), 311 Physiological adaptations to body-water excesses in rats, 320

Adrenal cortex

adenohypophysis and, 1 ammonia excretion in, 20 desoxycorticosterone glucoside, 825 radiation and, 526

Adrenal extracts, radiation and, 626 Adrenaline, ph of urine and, 522

Adrenaline, pH of urine and, 522 Afferent fibers from muscles and joints, 437

AKERT, K., W. P. KOELLA AND R. HESS, JR. Sleep produced by electrical stimulation of thalamus, 260

Alimentary tract, absorption, 311 Alimentation following radiation, 382

ALIMURUNG, M. M., 226

ALPERT, N. R. Effect of acute cardiac tamponade upon respiratory metabolism of dog, 565 Altitude

explosive decompression, 592, 601 longevity and high, 345

ALTLAND, P. D. AND B. HIGHMAN. Effect of repeated acute exposures to high altitude on longevity in rats, 345

Amino acids

proteinuria and, 504 synovial membrane potentials and, 820 Ammonia excretion, adrenal insufficiency and,

Ammonium chloride acidosis, 126

Amylase, pancreatic, 283

Annd, B. K. Influence of temperature on vagal inhibition and liberation of acetylcholine in frog hearts, 218

ANDEM, MARGARET R., 628

Anesthesia

respiratory response to, 686 kidney function and, 469

Aneurysm, dynamics of simulated saccular, 192

Angiocardiography, 509 Anoxia, 345

cardiac changes, 528

intracranial compression and, 234

Antibiotics, shock and, 430 Anticoagulant, Dicumarol, 287

Anuria during diffusion respiration, 131 Apnea, anuria during, 131

Arthritis, cortisone and, 820 Artificial sixteen-hour day, 694

ATKINSON, W. J. Jr. Effect of tetraethylammonium chloride on mammalian skeletal muscle action, 442

Audio frequencies, response of acoustic cortex

Auditory cortex, right middle ectosylvian, 712

BACHMAN, D. M., 303

Bacteria, hemorrhagic shock and, 430 BANKS, J., 728

Barbiturates, kidney function and, 469

BATES, MARGARET W., 812

Baumann, C. A., 504
Beall, F. A., E. M. Lerner, H and J. Victor,
Respiration associated with phagocytosis of
Brucella, 680

BEAN, J. W., 528 BELL, L. L., 557 BEMAN, F. M., 601 BERMAN, B., 446 BIGELOW, R. R., 620 Bile acids, hypercholesteremia and, 138 Biliary cholesterol, 297 Biliary fistula, Dicumarol in, 287 Biliary obstruction, hypercholesteremia and, 292 BISCHOFF, F. Non-depot delayed acting insulin,

BLICKENSTAFF, D. D., D. M. BACHMAN, M. E. STEINBERG AND W. B. YOUMANS. Intestinal absorption of sodium chloride solutions as influenced by intraluminal pressure and con-

Blood

centration, 303 altitude and changes in, 345 arterial and ventricular pressure changes, 612 bromides in serum, 254 capillary filtration, 674 capillary permeability, 538 cholesterol in plasma, 292, 297 circulation changes and explosive decompression, 502 cold and, 698 erythrocytes, 414 erythrocytes and potassium exchange, 658 erythrocyte response, 704 hemoglobin, pH of urine and, 522 hemorrhage, 565 hemorrhage and oxygen consumption, 575 hemorrhagic shock, 140, 150 inferior vena cava, 156 ischemia and circulating, 180 leucocytes and phagocytosis, 680 leucocyte response, 704 lymphocytes, 366 plasma potassium and acidosis, 126

vessels, response to stimuli, 208 Blood flow

cardiac tamponade, 565 pulmonary, 200 regulation by kidney, 480 renal, kidney, 490

renal response to solutes and, 66

removal of fat, 335

transfusion in shock, 430

vasotropic substances and radiation, 628

Blood pressure cardio-inhibitory response and, 176 intracranial compression and, 234 intrarenal pressure and, 637 respiration and, 612 salt depletion effect, 500

Blood sugar

acidosis and, 126 delayed-acting insulin and, 37 food intake and, 812

Body surface, equipotential distribution on, 584 Body water

excesses, 320

para-aminohippurate and creatinine distribution, 86

BOTT, PHYLLIS A. Renal excretion of creatinine in Necturus, 107

BOYARSKY, L. L. AND L. J. PEACOCK. Electrical response of acoustic cortex of dog to pure and complex audio frequencies, 742

BOZLER, E. Evidence for an ATP-actomyosin complex in relaxed muscle and its response to calcium ions, 760

Brain

cerebral cortex, 728 cerebral cortex and acetylcholine, 747 cerebral cortex, muscles and joints and, 437 electricity activity of, 406 electrical activity during sleep, 260 glycolysis, dinitrophenol and, 248 intracranial compression, 234 skeletal muscle action, 442

BRAZAEU, P., 77 Bromides in spinal fluid and serum, 254 Browman, L. G. Artificial sixteen-hour day activity rhythms in white rat, 694 Brucella, phagocytosis of, 680 BRYAN, A. R., 33

BURDETTE, W. J. Oxygen consumption of cardiac muscle during shock, 575 BURNETT, W. T., JR., R. R. BIGELOW, A. W.

KIMBALL AND C. W. SHEPPARD. Radiomanganese studies on mouse, rat and pancreatic fistula dog, 620

BYERS, S., 292

BYERS, S. O. AND M. FRIEDMAN.

Effect of various bile acids on hypercholesteremia following biliary obstruction in rat, 138

Production and excretion of cholesterol in mammals. VII. Biliary cholesterol: Increment and indicator of hepatic synthesis of cholesterol, 207

CALCIUM, muscle contraction and, 760 Calorie intake, estrus and, 301 CANNON, D. J., 251 Capillary filtration, 674 Capillary permeability, 538 Carbon dioxide, cardiac changes induced by, Carbon dioxide content of blood after explosive

decompression, 592 Carcinogenesis, calorie intake and, 391

Cation exchange resins, 44

Cells, substrate and enzyme distribution in, 728 Central nervous system, enzyme distribution and, 728

CHERNOFF, H., 584

Chest compression, reflex respiratory stimulation by, 686

Cholesterol

biliary obstruction and excess, 292 synthesis, liver, 297

Choline acetylase, inhibitors of, 658

Cholinesterase

cerebral cortex and, 747 potassium and, 658

Cinefluorographic angiocardiography, 509

Coagulation, adhesion in, 421

CODE, C. F., 605

Cold, heart and kidney weights, effects of, 698

COLLINS, E., 825

Conditioned reflex, 251

Contractility of muscle, 766, 782, 793, 805

Convulsion-inducing agents, adrenocorticotrophic hormone and, 406

Creatinine distribution, 86

Creatinine-inulin excretion by Necturus, 107 CULVER, G. A. AND H. RAHN. Reflex respira-

tory stimulation by chest compression in dog, 686

DE BODO, R. C., I Densogram, electrokymographic, 557 Desoxycorticosterone glucoside, 825

Diabetes delayed acting insulin and, 37 radioiodine on pancreatic, 20 regulation of food intake, 812

Dialuric acid, hemolysis induced by, 414 Dialysis studies in shock, 140

estrus and, 391 lithium salts, 642 low sodium, 500 partial nephrectomy, after, 114 proteinuria and, 504 salt-free and electrolyte removal, 55 sodium and potassium, 44 toxicity of desoxycorticosterone glucoside

and, 825 vitamin E deficiency, 414

Diffusion of lipid-soluble molecules, 538 Digitalis glucosides on heart, 171

Diuresis, 320

solutes and, 66

water and glomerular filtration rates, 666

DRAGSTEDT, L. R., 29 DRAPER, W. B., 131

Drugs

adrenocorticotrophic hormone, 406 adrenocorticotrophic hormone histidine me-· tabolism and, 121

adrenolytic, 704 alcoholic inhibitors, 605

cortisone and synovial membrane potentials, 820

desoxycorticosterone, 159

desoxycorticosterone acetate, 626 desoxycorticosterone glucoside, 825

Dicumarol, 287 digitalis glucosides, 171 dinitrophenol, brain glycolysis and, 248 epinephrine, 704 methacholine, 605 morphine, 150 morphine and potassium, 33 nor-epinephrine, 704 pentamethonium iodide, 208 sodium barbital and potassium, 33

tetraethylammonium chloride, 208

DUNN, CLARA E., 546

EADIE, G. S., 254 Ear, left and right, auditory signals, 712 EDELMANN, A. AND S. KATSH. Survival of rats adrenalectomized after x-irradiation, 626 EISENSTEIN, B., 650

Electrical activity of brain, 406

Electrical response of acoustic cortex, 742 Electrical stimulation of skeletal muscle, 458 Electrocardiogram, 528

Electrocardiography, 584

Electrokymographic densogram, 557

Electrolytes

cation exchange resins and, 44 removal by peritoneal dialysis, 55 ureteral pressure and, 97

Electromyogram, 446

Electrophoretic components of pancreatic juice,

ELISBERG, E. I., 93, 650 ELLIOTT, K. A. C., 747 Embryo, glycogen in, 375 Emphysema, subcutaneous, 601 Environment

artificial sixteen-hour day, 694 sexual function and, 400

Enzyme acetyl cholinesterase, 546 distribution, 728 electrophoretic components, 260

oxidative phosphorylation, 739 pancreatic juice, 283

Equipotential distribution of cardiac cycle, 584 Estrus, protein intake and, 391 Explosive decompression, 592

Explosive decompression, subcutaneous pressure and, 601

EYZAGUIRRE, C., 446

Fasting, radiation and, 382 Fat, removal from circulation, 335 Feeding, radiation and forced, 382 Fibers, afferent, 437

Fibrinogen, clots formed from, 421

FIELD, J., 248 FIELD, J. B. Hypoprothrombinemia in biliary fistula dogs induced by minute doses of Dicumarol, 287

FINE, J., 140, 150, 430

Food intake, hypoglycemia and, 812

Foreleg, conditioned reflex in. 251

FORSTER, R. P. Stability of glomerular filtration rates with uncomplicated water diuresis in

FOULKS, J., G. H. MUDGE AND A. GILMAN. Renal excretion of cation in dog during infusion of isotonic solutions of lithium chloride, 642

FOULKS, I., P. BRAZAEU, E. S. KOELLE AND A. GILMAN. Renal secretion of thiosulfate in dog, 77

FRANK, E. D., 140

Frank, H. A., E. D. Frank, S. Jacob, P. GLOTZER, L. PERSKY, E. W. FRIEDMAN, A. SCHWARTZ, A. M. RUTENBURG, S. MILROD AND I. FINE. Traumatic shock. XX. Course of hemorrhagic shock in dogs treated by peritoneal irrigation or by artificial kidney, 140

FRANK, H. A., S. JACOB, E. W. FRIEDMAN, A. M. RUTENBURG, P. GLOTZER AND J. FINE. Traumatic shock. XXII. Irreversibility of hemorrhagic shock and VDM hypothesis. Failure of ferritin to affect arterial pressure and survival period of hepatectomized-nephrectomized dogs, 150

FRANK, H. A. AND S. W. JACOB. One-stage hepatectomy in dog, preserving the inferior

vena cava, 156

FRANK, H. A., S. W. JACOB, F. B. SCHWEIN-BURG, J. GODDARD AND J. FINE. Traumatic shock. XXI. Effectiveness of an antibiotic in experimental hemorrhagic shock, 430

FRIEDEN, J., J. STAMLER, W. HWANG, K. KURA-MOTO AND L. N. KATZ. Effect of chronic salt depletion on blood pressure of renal hypertensive dogs, 500

FRIEDEN, J., L. RICE AND E. L. ELISBERG. Renal tubular sodium metabolism in sodium deficiency states, 93

FRIEDEN, J., L. RICE, E. I. ELISBERG, B. EISENSTEIN AND L. N. KATZ. Effects of chronic peripheral venous congestion on renal sodium excretion, 650

FRIEDMAN, E. W., 140, 150

FRIEDMAN, M., 138, 297

FRIEDMAN, M. AND S. BYERS. Production and excretion of cholesterol in mammals. VI. Bile acid accumulation in production of hypercholesteremia occurring after biliary obstruction, 292

GANGLION blockade in neurogenic hypertension, 208

GARDNER, E. AND R. NOER. Projection of afferent fibers from muscles and joints to cerebral cortex of cat, 437

Gastric secretion, 605

GERARD, R. W., 728, 739

GERSTEN, I. W. Effect of subthreshold currents on isometric tension and phosphocreatine content of frog gastrocnemius, 458

GILMAN, A., 77, 642

GLAUSER, K. F. AND E. E. SELKURT. Effect of barbiturates on renal function in dog, 460 GLENN, W. W. L., 66

Glomerular filtration rate, 666

anesthesia and, 469 measurement, 77

sodium and water excretion and, 490 ureteral pressure and, 97

GLOTZER, P., 140, 150

Glucose tolerance, acidosis and, 126

Glucoside, desoxycorticosterone, 825 Glycogen, embryo, in, 375

GODDARD, J., 430 GOOD, H. V., 176, 182

GOODMAN, ELEANORE D., 352

GOODYER, A. V. N. AND W. W. L. GLENN. Excretion of solutes injected into renal artery of dog. 66

GREENBERG, J., I. L. SCHWARTZ, M. SPINNER, L. SILVER AND NINA STARR. Apparent volumes of distribution of p-amino-hippurate and creatinine in dog, 86

GREIG, MARGARET E., 546

GROSSBERG, A. L., S. A. KOMAROV AND H. SHAY. Distribution of proteins and enzymatic activities in electrophoretic components of canine pancreatic juice, 269

Growth hormone, effects on phosphatases, 352 Growth, partial nephrectomy, after, 114

GUEST, G. M., 126

György, P., 414

Hajdu, S. and A. Szent-Györgyi.

Action of digitalis glucosides on isolated frog heart, 171

Action of DOC and serum on frog heart, 159

HALEY, T. J., R. F. RILEY, IDAMAE WILLIAMS AND MARGARET R. ANDEM. Presence and identity of vasotropic substances in blood of rats subjected to acute whole body roentgen ray irradiation, 628

HALL, V. E., 248

HAMILTON, L. H. AND S. M. HORVATH. Effect of an adrenolytic drug on erythrocyte and leukocyte response to epinephrine and nor-epinephrine in normal dogs, 704

HARRIS, F. D., A. F. HARTMANN, JR., D. ROLF AND H. L. WHITE. Ammonia excretion in

adrenal insufficiency, 20 HARTMANN, A. F., JR., 20

HASTINGS, A. B., 658

HEART

arterial pressure, 637 arterial pressure pulses, 192

auricles, permeability of, 546 cardiac changes induced by O2, 528 cardiac cycle, 584 cardiac muscle, 575 cardiac output and lung capacity, 200 cardio-accelerator activity and vasopressin, 182 cardio-inhibitory response to pressor compounds, 176 cardiovascular response, 704 cardiovascular system and respiration, 612 congestive failure, 650 desoxycorticosterone, serum and, 150 diastolic volume, 509 digitalis on, 171 first sound, 226 myocardium, 226 pressor response, 234 stroke volume, 509 systolic discharge, record of, 557 vagal inhibition, 218 venous congestion, 650 Heart rate, vasopressin and, 182

Hemolysis, vitamin E deficiency and, 414 HESS, R., 260 HEWITT, A. F., 176, 182

HIGHMAN, B., 345 Histidine, 121

HITCHCOCK, F. A., 592, 601
HOLLAND, W. C., CLARA E. DUNN AND
MARGARET E. GREIG. Studies on permeability.
VII. Effect of several substrates and inhibitors of acetyl cholinesterase on permeability
of isolated auricles to Na and K. 546

Hormones, tissue phosphatases and, 352

HORVATH, S. M., 612, 704
HUGGINS, R. A., R. A. SEIBERT AND A. R.
BRYAN. A comparison of effects of morphine
and barbital on volume distribution of potassium, 33

HWANG, W., 500
HYMAN, C., S. I. RAPAPORT, A. M. SAUL AND
M. E. MORTON. Independence of capillary
filtration and tissue clearance, 674

Hypertension ganglion blockade in neurogenic, 208 renal, 500

INSULIN
acidosis and, 126
delayed acting, 37
food intake and, 812
Intestinal absorption, sodium chloride, of, 303
Inulin excretion by Necturus, 107
Ischemia, swelling following, 189
Iso-frequency contours of right middle ectosylvian auditory cortex, 712
Isometric tension, 458
Isotope, radiomanganese, 620

JACOB, S., 140, 150
JACOB, S. W., 156, 430
JAMES, W. T. AND D. J. CANNON. Conditioned avoiding response in puppies, 251
JARCHO, L. W., C. EYZAGUIRRE, B. BERMAN AND J. L. LILIENTHAL, JR. Spread of excitation in skeletal muscle: some factors contributing to form of electromyogram, 446
Joints, afferent fibers from, 437

KATSH, S., 626
KATZ, L. N., 500, 650
KEMPH, J. P. AND F. A. HITCHCOCK. Changes in blood and circulation of dogs following explosive decompression to low barometric pres-

sures, 592

Kemph, J. P., F. M. Beman and F. A. Hitch-cock. Subcutaneous pressure developed in dogs following explosive decompression to

25 or 30 mm. Hg, 601 idney
ammonia excretion, 20
anuria and blocking of renal nerve, 131
arterial pressure, 490
barbiturates and function of, 469
body and organ growth, 114
cold and changes in, 698
creatinine excretion, 107
dialysis studies in shock, 140
glomerular filtration rates and, 666

intrarenal pressure, 637 lithium excretion, 642 para-aminohippurate and creatinine distribution, 86

partial nephrectomy, 114 pH of urine, 522 pressure/flow relations in, 480 salt conservation, 93 secretion of thiosulfate, 77 sodium excretion, 650 solutes injected into artery, 66 ureteral pressure and, 97

hypertension, 500

KIMBALL, A. W., 620 KINO, J. T., 301 KNOWLTON, G. C. Denervation time and muscle restitution, 245

KOELLA, W. P., 260 KOELLE, E. S., 77 KOMAROV, S. A., 260

KOMAROV, S. A., 269
KOPECKY, F. A., C. J. RAYBURN, R. W. WHITE-HEAD AND W. B. DRAPER. A study of anuria occurring during apnea under diffusion respiration, 131

Кикамото, К., 500

LACTATE, cardiac tamponade and, 565
LANE, N. AND R. C. DE BODO. Generalized

adrenocortical atrophy in hypophysectomized dogs and correlated functional studies, 1

LEE, Y. C. P., J. T. KING AND M. R. VISSCHER. Influence of protein and calorie intake upon certain reproductive functions and carcinogenesis in the mouse, 301

Length-tension relation in muscle, 766

LERNER, E. M., II, 680

LEW, W., 114

LEWIS, L., 226

LICHTENSTEIN, H., 126

Life expectancy, altitude and, 345

LILIENTHAL, J. L., JR., 446

LINKSWILER, H., MAY S. REYNOLDS AND C. A. BAUMANN. Factors affecting proteinuria in rat, 504

Lipase, enzymatic activities in, 269 Lipemia, removal of fat and, 335 Lipid-soluble molecules, 538

LIPPMAN, R. W., 114

Lithium excretion, 642

Liver

alkaline phosphatase in, 352 cholesterol in, 292 cholesterol synthesis, 297 hypercholesteremia, 138 removal of fat, 335

technic of hepatectomy, 156 LIVERMORE, G. R., JR. AND C. F. CODE. A possible gastric secretory inhibitor in canine gastric juice, 605

Longevity, high altitude and, 345

LUISADA, A. A., M. M. ALIMURUNG AND L. LEWIS. Mechanisms of production of first heart sound, 226

Lumen, intestinal, 303 Lung deflation, respiration and, 686

Lung, vascular capacity, 200

Lymph fistula, metabolic effects of, 366 Lymph, thoracic duct, 335

MacCanon, D. M. and S. M. Horvath. Influence of respiration on arterial, and right and left ventricular pressures, 612

Mackler, B., H. Lichtenstein and G. M. Guest. Effects of ammonium chloride acidosis on glucose tolerance in dogs, 126

Manganese, pancreas and, 620

MATHIES, J. C., ELEANORE D. GOODMAN AND LUCILLE PALM. Effects of hypophysectomy, growth hormone and thyroxine on phosphatases of tibia, liver, spleen and kidneys of rat, 352

MAURO, A., L. H. NAHUM, R. S. SIKAND AND H. CHERNOff. Equipotential distribution for various instants of the cardiac cycle on body

surface of dog, 584
MAYER, JEAN AND MARGARET W. BATES. Blood
glucose and food intake in normal and hypophysectomized, alloxan-treated rats, 812 McChesney, E. W. In vivo uptake of cations by two types of exchange resins, 44

McCubbin, J. W., 208

MCKEAGUE, G., 29

Mechano-chemical properties of muscle, 782 MENG, H. C. Removal of intravenously injected fat from circulation and its appearance in thoracic duct lymph, 335

Metabolism

adrenal cortex and, 1 anaerobic glycolysis, 248 central nervous system, 728 histidine, 121 lymph fistula, effects of, 366 respiratory, 565

shock and, 575 sodium, 93

thyroid and lipid, 29

MILROD, S., 140 Mitochondria, 739 MONTGOMERY, A. V., 637 MOORE, V., 637

MORRISON, P. R. AND A. SEILER. Effect of physical variables on adhesion in clots formed from fibrinogen and thrombin, 421

MORTON, M. E., 674 MUDGE, G. H., 642

Muscle

action of skeletal, 442
adenosinetriphosphate and, 760
afferent fibers from, 437
cardiac and shock, 575
contractility, 766, 782, 793, 805
contraction, desoxycorticosterone and, 159
contraction, digitalis glucosides and, 171
electrical stimulation of skeletal, 458
glycogen fractions in, 375
restitution, 245
size of contractile unit, 805
skeletal, excitation in, 446

Nahum, L. H., 584

NAVIS, G. J., 557
NEAL, W. B., JR., L. R. DRAGSTEDT, GEORGIANA
R. ROGERS AND G. McKeague. Effect of
destruction of thyroid glands by radioactive
iodine on pancreatic diabetes in dog, 20

tetanized, thermal behavior, 793

Necturus, creatinine excretion by, 107 Nerve action, ammonium compounds and, 442 Neural tissue, phosphate oxidation by, 730 NOER, R., 437

Nor-adrenaline, ph of urine and, 522

NORTHROP, J. P., 311, 320

NOVAK, A. Effect of ACTH on incorporation of labeled-histidine into tissue proteins in male adult mice, 121

NUDELL, G. AND R. M. REINECKE. Swelling of tail of mouse following varying periods of ischemia, 180 CHSNER, A., JR. Effects of pulmonary blood flow and distention on capacity of intrapulmonary vessels, 200

Oxidation, phosphate bonds, 739

Oxygen at high pressure cardiac changes and, 528

Oxygen consumption

blood flow and, 565 shock and, 575

Oxygen content of blood following explosive decompression, 592

Page, I. H. and J. W. McCubbin. Increased resistance to autonomic ganglionic blockade by tetraethylammonium chloride and pentamethonium iodide in experimental neurogenic hypertension, 208

PALM, LUCILLE, 352

Pancreas, radiomanganese in, 620

Pancreatic juice

amylase activity, 283

electrophoretic components, 269

Para-aminohippurate distribution, 86

PARTRIDGE, M. H., 375

PATRICK, S. I. AND G. S. EADIE. Bromides in spinal fluid and serum, 254

Peacock, L. J., 742

PEISS, C. N., J. FIELD AND V. E. HALL. Effect of 2,4-dinitrophenol upon anaerobic glycolysis in rat cerebral cortex slices, 248

Peritoneal dialysis, electrolyte removal by, 55

PERLMUTT, J., 825

Permeability, acetyl cholinesterase and, 546

PERSKY, L., 140

Phagocytosis, respiration and, 680

Phosphatases, tissue, 352

Phosphate, oxidative esterification of, 739

Phosphocreatine content, muscle, in, 458 Physical variables, effect on clots of, 421

Physicochemical model of contractile process,

766, 782, 793, 805

Physiological adaptation to body-water excesses,

PITTS, R. F., 490

Polissar, M. J.

Physical chemistry of contractile process in muscle. I. A physicochemical model of contractile mechanism, 766

Physical chemistry of contractile process in muscle. II. Analysis of other mechanochemical properties of muscle, 782

Physical chemistry of contractile process in muscle. III. Interpretation of thermal behavior of stimulated muscle, 793

Physical chemistry of contractile process in muscle. IV. Estimates of size of contractile unit, 805

Polysaccharide, glycogen fractions and, 375 Poo, L. J., 114

Potassium

acetylcholine and, 546

concentrations, acetylcholine and, 747 effect of inhibitors on, 658

volume distribution of, 33 Potentials of skeletal muscle, 446

Potentials, synovial membrane, 820

Pressor response to intracranial compression,

234 Pressure

low barometric, 601

low barometric, and circulation changes,

Pressure/flow relations in kidney, 480

Protein

distribution, 260

histidine metabolism and tissue, 121

intake, reproductive function and, 301

Proteinuria, 504

Prothrombin, Dicumarol and, 287

Pulse pressure, kidney and, 480

#### KADIATION

adrenal cortex and survival after, 626 alimentation following, 382

roentgen ray and vasodilatation, 628 Radioactivity, iodine and pancreatic diabetes,

Radiomanganese in pancreatic fistula, 620 RAHN, H., 686

RAPAPORT, S. I., 674

RAYBURN, C. J., 131

REED, C. I. Effect of cortisone on positive potentials induced by glucosamine and amino purines in synovial cavities of dogs, 820

Reflex stimulation of respiration, 686

REINECKE, R. M., 189

REINEKE, E. P., 400

REINHARDT, W. O., 366

RENKIN, E. M. Capillary permeability to lipid-

soluble molecules, 538

Reproductivity

calorie intake and, 301

thyroid and, 400

Resins, ion exchange, 44

Respiration

anuria during diffusion, 131 blood pressure levels and, 612

metabolism, 565

phagocytosis and, 680

reflex stimulation of, 686

REYNOLDS, MAY S., 504

Rhythms, activity, 694

RICE, L., 93, 650

RILEY, R. F., 628

RING, G. C., G. J. NAVIS AND L. L. BELL. Electrokymographic densogram as a record of systolic discharge, 557

RITTER, E. R. Pressure/flow relations in kidney, alleged effects of pulse pressure, 480

RODBARD, S. AND H. SAIKI. Mechanism of pressor response to increased intracranial pres-

Roentgen ray radiation, 628 ROGERS, GEORGIANA R., 29

ROLF, D., 20

ROSE, CATHERINE S. AND P. GYÖRGY. Specificity of hemolytic reaction in vitamin E-deficient erythrocytes, 414

RUSHMER, R. F. AND N. THAL. Factors influencing stroke volume: A cinefluorographic study of angiocardiography, 509

RUTENBERG, A. M., 140, 150

SAIKI, H., 234

Salt

absorption, 303, 311 adrenal insufficiency and depletion of, 20 depletion, renal hypertension and, 500

SAUL, A. M., 674

SCHLEGEL, J. U. Effect of adrenaline, nor-adrenaline and hemoglobin on the pH of urine, 522 SCHWARTZ, A., 140

SCHWARTZ, I. L., 86

SCHWEINBURG, F. B., 430

SEAY, P., 825

Secretion of manganese, 620

SEIBERT, R. A., 33 SEILER, A., 421

SELKURT, E. E., 469

SEMPLE, R. E. Compensatory changes in rat following removal of electrolytes by intraperitoneal dialysis, 55

Serum

action on frog heart, 159 bromides, 254

Sexual function, 400

Share, L. Effect of increased ureteral pressure on renal function, 97

Shay, H., 269

SHEPPARD, C. W., 620

Shock

antibiotic in experimental, 430 dialysis studies in, 140 oxygen consumption and, 575

vasodepressor material (VDM) hypothesis

and hemorrhagic, 150 vasoexcitor material, 628

SHREWSBURY, M. M., JR. AND W. O. REIN-HARDT. Comparative metabolic effects of ingestion of water or 1 per cent sodium chloride solution in rat with a thoracic duct lymph fistula, 366

SIKANL, R. S., 584

SILVER, L., 86 Skeletal muscle

excitation in, 446 stimulation of, 458

Skin

tissue clearances, 674 vasodilatation and radiation, 628 Sleep, stimulation of thalamus and, 260

Small intestine, cation exchange resins, 44

SMITH, F., 382 SMITH, W. W., ISABELLE B. ACKERMANN AND F. SMITH. Body weight, fasting and forced feeding after whole body x-irradiation, 382

acetylcholine and, 546

excretion, 93, 490

excretion, venous congestion and, 650

Sodium chloride absorption of, 303

solution, metabolic effects of, 366

SOLIMAN, F. A. AND E. P. REINEKE. Influence of variations in environmental temperature and thyroid status on sexual function in young female mice, 400

Solutes injected into renal artery, 66

Sound stimuli, acoustic cortex response to, 742

Spinal fluid, bromides in, 254

SPINNER, M., 86 STAMLER, J., 500

Starch, amylases and, 283

STARR, NINA, 86

STEINBERG, M. E., 303

Steroid

desoxycorticosterone glucoside, 825 thiosulfate transport and, 77

Stomach

gastric secretory inhibitor, 605 glucose and food intake, 812 radiation and, 382

SWANN, H. G., V. MOORE AND A. V. MONT-GOMERY. Influence of arterial pressure on intrarenal pressure, 637

Swelling

explosive decompression and, 601

following ischemia, 189 SWINGLE, W. W., J. PERLMUTT, P. SEAY AND E. COLLINS. Intravenous injections of watersoluble desoxycorticosterone glucoside in intact and adrenalectomized dogs, 825

Synovial membrane potentials, 820 Systolic discharge, record of, 557

SZENT-GYÖRGYI, A., 159, 171

SZEPSENWOL, J. AND M. H. PARTRIDGE. Acidsoluble and acid-insoluble fractions of glycogen in chick embryo, 375

AYLOR, I. M., J. M. WELLER AND A. B. HASTINGS. Effect of cholinesterase and choline acetylase inhibitors on potassium concentration gradient and potassium exchange of human erythrocytes, 658

Temperature artificial sixteen-hour day activity rhythms and, 604

environmental, sexual function and, 400 metabolism of central nervous system and regulation of, 248

vagal inhibition and, 218 Testosterone, proteinuria and, 504 Tetraethylammonium chloride, 442

Tetraethylammonium chloride, 4. THAL, N., 509

Thalamus, sleep and stimulation of, 260 Thermal behavior of stimulated muscle, 793 Thiosulfate, renal secretion of, 77

THOMPSON, D. D. AND R. F. PITTS. Effects of alterations of renal arterial pressure on sodium and water excretion, 490

Thoracic duct lymph, fat in, 335 Thrombin, clots formed from, 421 Thyroid

Thyroid radioiodine, effect on, 29

sexual function and, 400 Thyroxine, effects on phosphatases, 352 Time-tension relation in muscle, 782

Tissue clearance, 674

TORDA, CLARA AND H. G. WOLFF. Effects of various concentrations of adrenocorticotrophic hormone on electrical activity of brain and on sensitivity to convulsion-inducing agents, 406

TOWER, D. B. AND K. A. C. ELLIOTT. Activity of acetylcholine system in cerebral cortex of various unanesthetized mammals, 747

Toxicity, lithium salts and, 642 TSCHIRGI, R. D., 728

Tubular sodium reabsorption, 93

TUNTURI, A. R. A difference in the representation of auditory signals for left and right ears in iso-frequency contours of right middle ectosylvian auditory cortex of dog, 712

Urine Uressure, kidney and, 97

chemistry, cold and, 698 pH, 522

Vasodepressor material (VDM) hypothesis,

Vasopressin, cardio-accelerator activity and, 182 Vasopressor compounds, cardio-inhibitory response to, 176 Vena cava, preservation of in hepatectomy, 156 VICTOR, J., 680 VISSCHER, M. R., 391 Vitamin E deficiency, 414

Vitamin K, biliary fistula and, 287

W ALDRON, J. M. Amylase activity of canine pancreatic juice, 283
Water

absorption, 303, 311 diuresis, glomerular filtration rates and, 666 excesses, body, 320 excretion, 490 peritoneal dialysis and body, 55

solution, metabolic effects of, 366 WAUGH, D. Effects of continuous exposure to cold on organ weights, blood and urine chemistry of rabbits, 698

Weight

muscle restitution and, 245 organ and kidney changes and cold, 698 radiation and body, 382

WELLER, J. M., 658 WHITE, H. L., 20 WHITEHEAD, R. W., 131

WHITEHORN, W. V. AND J. W. BEAN. Cardiac changes induced by O<sub>2</sub> at high pressure, CO<sub>2</sub> and low O<sub>2</sub>, as manifest by electrocardiogram, 528

WHITTLESEY, R. H. Dynamic changes in arterial pressure pulses produced by a simulated saccular aneurysm, 102

WILLIAMS, IDAMAE, 628 WOLFF, H. G., 406 WONG, W., 114

Youmans, W. B., 303

YOUMANS, W. B., H. V. GOOD AND A. F. HEWITT. Cardio-inhibitory response to vasopressor compounds in rabbits with sino-aortic nerves sectioned, 176

Inhibitory effect of vasopressin on cardioaccelerator mechanism after sino aortic denervation, 182

# THE AMERICAN JOURNAL OF PHYSIOLOGY

**VOLUME 169** 

April-June 1952

#### BOARD OF PUBLICATION TRUSTEES

W. O. FENN, Chairman

W. F. HAMILTON

R. F. PITTS

F. D. W. LUKENS

DAVID RAPPORT

L. M. TOCANTINS

J. E. THOMAS

#### EDITORIAL BOARD

A. C. Burton

J. H. Comroe, Jr.

H. E. Essex A. GILMAN F. G. HALL

D. J. INGLE

L. N. KATZ

E. M. LANDIS

D. P. C. LLOYD

MILTON O. LEE, Managing Editor

THE AMERICAN PHYSIOLOGICAL SOCIETY Washington, D. C.

COPYRIGHT 1952, BY
THE AMERICAN PHYSIOLOGICAL SOCIETY, INC.

PRINTED IN THE UNITED STATES OF AMERICA BY WAVERLY PRESS, INC., BALTIMORE, MARYLAND

# Contents of Volume 169

No. 1. APRIL 1952

I	Some Features in Responses of Different Nerve Fiber Types to a Deficiency of Sodium $Frederick\ Crescitelli$
II	Sympathetic Receptor Action A. M. Lands
22	EFFECTS OF EPINEPHRINE AND NOR-EPINEPHRINE ON BLOOD FLOW THROUGH NOR- MAL AND DENERVATED LIMBS OF DOGS  Charles J. Imig, Barbara F. Randall and Harry M. Hines
26	EFFECTS OF REDUCED BLOOD SUPPLY ON BONE Carl C. Coolbaugh
34	EARLY POSTNATAL CHANGES IN PULMONARY BLOOD VOLUME OF THE GUINEA PIG Newton B. Everett
40	Interrelations of Pulmonary Arterial, 'Capillary' and Left Atrial Pressures Under Experimental Conditions $Jay\ L.\ Ankeney$
50	Ventricular Fibrillation Induced by Ether Inhalation in Rat $Sheppard\ M.\ Walker$
56	VENTRICULAR FIBRILLATION FOLLOWING A RAPID FALL IN ALVEOLAR CARBON DIOXIDE CONCENTRATION E. B. Brown, Jr. and Fletcher Miller
61	Distribution of Tissue Fluid in Hearts of Rats Subjected to Anoxia $Janet\ M.\ Lemley\ and\ George\ R.\ Meneely$
66	Effects of Anonia on Metabolism of Myocardial Tissue $Janet\ M.\ Lemley\ and\ George\ R.\ Meneely$
74	ELECTROCARDIOGRAM OF THE NORMAL DOG IN ITS ALTERATION IN ACUTE MALIGNANT HYPERTENSION INDUCED BY BILATERAL NEPHRECTOMY Arthur Grollman, J. A. McLean, E. E. Muirhead and Maurice M. Scurry
78	Effects of Hyperpyrexia on the Heart in Situ: Studies With Dicumarol, Dinitrophenol and External Heat Robert P. Walton, Leon I. Goldberg, Peter C. Gazes, John S. Leary, Humphrey K. Ezell, Charles B. Hanna and Rose P. Prystowsky
04	Internal Water Exchange Rates Following Hemorrhage in Splenectomized Dogs M. J. Fogelman, P. O. B. Montgomery and Carl A. Moyer
102	RESPONSE OF HENS UNDER THERMAL STRESS TO DEHYDRATION AND CHILLED DRINKING WATER Wilbor O. Wilson and William H. Edwards
108	Effect of Ambient Water Temperature, Alcohol, and Certain Endocrine Products on Survival From Drowning in Rats and Mice $W.\ A.\ Hiestand,\ F.\ W.\ Stemler\ and\ J.\ E.\ Wiebers$
111	Partial Sterilization Caused by Feeding Sulfaguanidine to Rats $Philip\ V.\ Rogers$
118	EFFECT OF CRYSTALLINE SUSPENSIONS OF ADRENAL STEROIDS UPON LIFE-SPAN OF ADRENALECTOMIZED DOGS W. W. Swingle, Elliott Collins, George Barlow and Edward Fedor
123	The Role of the Neurohypophysis in Ferritin-Induced Antidiuresis Silvio Baez, Abraham Mazur and Ephraim Shorr

Relation of the Sulfhydryl Groups in Ferritin to Its Antidiuretic Action $Abraham\ Mazur,\ Silvio\ Baez\ and\ Ephraim\ Shorr$	134
Effect of Pituitary Hormones, Cortisone and Adrenalectomy on Some Aspects of Neuromuscular Function and Acetylcholine Synthesis  Clara Torda and Harold G. Wolff	140
EFFECTS OF ADRENOCORTICOTROPHIC HORMONE, CORTISONE ACETATE, AND 17-HYDROXYCORTICOSTERONE-21-ACETATE ON ACETYLCHOLINE METABOLISM  Clara Torda and Harold G. Wolff	150
EFFECT OF ACUTE CHANGES IN GLOMERULAR FILTRATION RATE ON WATER AND ELECTROLYTE EXCRETION: MECHANISM OF DENERVATION DIURESIS  A. Surtshin, C. Barber Mueller and H. L. White	150
RENAL GLUTAMINASE AND AMMONIA EXCRETION H. L. White and Doris Rolf	174
A COMPARATIVE STUDY OF RENAL INTERSTITIAL PRESSURE Carl W. Gottschalk	180
EFFECT OF PARATHYROID EXTRACT ON RENAL FUNCTION  Philip Handler and David V. Cohn	188
Labeled Iron Stores in Study of Iron Liberated During Red Cell Destruc- tion by Acetylphenylhydrazine Harold D. West, Paul F. Hahn, William F. Clark and Emmett W. Chappelle	104
Partition Between Lymph and Urine of Intravenously Administered Fluids William O. Reinhardt	198
Effect of Thermal Injury and X-Irradiation on Serum Iron Concentration and on Iron Contents of Liver, Spleen and Kidney of Rats  Alfred Chanutin, Stephan Ludewig and Elizabeth A. Lentz	203
PROTHROMBIN UTILIZATION IN RADIATION INJURY D. P. Jackson, E. P. Cronkite, G. J. Jacobs and C. F. Behrens	208
Effect of Calcium, Magnesium and ph on Adenosinetriphosphatase Activity of Myosin B Threads William J. Bowen	218
Effects of Divalent Ions on the Shortening of Myosin B Threads $William\ J.\ Bowen$	223
Effect of Prolonged Intragastric Feeding on Oral Food Intake in Dogs Isaiah Share, Eugene Martyniuk and M. I. Grossman	220
GASTROINTESTINAL TRANSIT Raymond D. Goodman, Alvin E. Lewis, Edward A. Schuck and Moses A. Greenfield	236
Effects of X-Irradiation on Gastrointestinal Transit and Absorption Availability Raymond D. Goodman, Alvin E. Lewis and Edward A. Schuck	242
Stress of Realimentation With Protein or Carbohydrate Following Prolonged Fasting C. M. Wilhelmj, Terence F. McGuire and E. B. Waldmann	248
No. 2. MAY 1052	
RELATIONSHIP BETWEEN HYPOTHALAMIC TEMPERATURE AND THERMOREGULATORY EFFECTORS IN UNANESTHETIZED CAT R. E. Forster, II and T. B. Ferguson	255
BIOASSAY AND PHYSIOLOGICAL EFFECTS OF CORTISONE ON ADRENALECTOMIZED DOGS W. W. Swingle, Elliott Collins, George Barlow and E. J. Fedor	270
AN EXPERIMENTAL STUDY OF DESOXYCORTICOSTERONE ACETATE AND WATER-SOLUBLE GLUCOSIDE OF DESOXYCORTICOSTERONE	
W. W. Swingle, Joseph Perlmutt, Patrick Seav and Elliott Collins	278

#### CONTENTS OF VOLUME 169

Comparative Studies on Acclimatization of Mice to Carbon Mononide and to Low Oxygen Robert T. Clark, Jr. and Arthur B. Otis	285
Influence of Diet on Incidence of Alloxan Diabetes Ricardo R. Rodriguez and Willard A. Krehl	295
INACTIVATION OF PROLACTIN BY BODY TISSUES IN VITRO  J. T. Sgouris and Joseph Meites	301
EFFECT OF PRESENCE OF OTHER AMINO ACIDS UPON INTESTINAL ABSORPTION OF SINGLE AMINO ACIDS IN THE RAT  Henry Kamin and Philip Handler	305
DIETARY FACTORS INFLUENCING OUTPUT OF BILE ACIDS: ENDOGENOUS PRODUC- TION OF BILE ACIDS D. F. Magee, K. S. Kim, V. C. Pessoa and A. C. Ivy	300
Dietary Factors Influencing Output of Bile Acids: Role of Amino Acids $D.\ F.\ Magee,\ K.\ S.\ Kim\ and\ A.\ C.\ Ivy$	317
Utilization of Compounds of Krebs Cycle for Contraction Energy by Rab- bit Intestinal Smooth Muscle Robert F. Furchgott and Marilyn R. Wales	326
ACTION OF SOME SYNTHETIC CHOLERETIC COMPOUNDS IN CHRONIC BILIARY FISTULA DOGS  D. F. Magee, K. S. Kim and A. C. Ivy	337
Total Body Sodium, Potassium and Nitrogen in Rats Made Hypertensive by Subtotal Nephrectomy Robert W. Greene and Leo A. Sapirstein	343
Anoxia as a Factor in Resistance to Mercurial Diuretics  D. R. Axelrod and R. F. Pitts	350
TUBULAR EXCRETION OF CREATININE IN THE RAT E. Fingl	357
Kinetics of Inulin Distribution and Excretion Following a Constant In- fusion Matthew N. Levy, Jay L. Ankeney and Robert M. Berne	363
Response of Chronic Denervated Heart to Acetylcholine and Epinephrine Rusen Greenberg and Charles B. Lambeth	369
EFFECT OF VAGAL STIMULATION ON CARDIAC EXCITABILITY  Brian F. Hoffman, Arthur A. Siebens and Chandler McC. Brooks	377
RELATION OF VALVULAR LESIONS AND OF EXERCISE TO AURICULAR PRESSURE, WORK TOLERANCE, AND TO DEVELOPMENT OF CHRONIC, CONGESTIVE FAILURE IN DOGS  A. C. Barger, B. B. Roe and G. S. Richardson	384
Distortion of Electrocardiographic Effects of Intravenously Injected Solutions Due to Cooling of Myocardium E. Lepeschkin	400
EFFECT OF CHANGES IN INITIAL TENSION, INITIAL VOLUME AND EPINEPHRINE ON VENTRICULAR RELAXATION PROCESS  David F. Opdyke	403
CARDIAC RESISTANCE TO FLOW; PRESSURE-FLOW RELATIONSHIPS IN QUIESCENT AND BEATING TURLE HEART  B. Günther and E. M. Landis	412
Mechanism of Venous Flow Under Different Degrees of Aspiration Gerhard A. Brecher	423
EXPERIMENTAL CONSTRICTIVE PERICARDITIS: ANALYSIS OF INDUCED CIRCULATORY FAILURE Robert J. Boucek, John H. Grindlay and Howard B. Burchell	434
EXPERIMENTAL CONSTRICTION OF INFLOW TRACTS IN THE HEART: ANALYSIS OF CIRCULATORY FAILURE	
Robert J. Boucek, John H. Grindlay and Howard B. Burchell	442
VARIATIONS IN EOSINOPHIL MORPHOLOGY AND LEUKOCYTE COUNTS IN THE RAT FOLLOWING INJECTION OF A TUMOR-NECROTIZING BACTERIAL POLYSACCHARIDE William E. Poel and Morris Belkin	453

EFFECTS OF ANOXIA ON PRESSURE, RESISTANCE AND BLOOD (P <sup>32</sup> ) VOLUME OF PUL- MONARY VESSELS Domingo M. Aviado, Jr., Aurelio Cerletti, J. Alanis, Peter H. Bulle and Carl F. Schmidt	460
Observations of Reflex Vascular Responses to Stimulation of Blood Vessels and Perivascular Tissues in the Dog R. B. Lynn and F. A. Simeone	471
A Comparison of Efficacy of Dextran, Oxypolygelatin, Plasma and Saline	4/1
AS Plasma Volume Expanders Lawrence G. Raisz and Edwin J. Pulaski	475
Plasma Proteins and Plasma Volume in Rats Following Total-Body X-Ir- radiation Helen Supplee, James D. Hauschildt and Cecil Entenman	483
Effects of Diftary Protein and Methionine on the X-Irradiated Rat Willie W. Smith, Isabelle B. Ackermann and I. M. Alderman	401
EFFECT OF X-RADIATION, RADIOMIMETIC SUBSTANCES AND SURGICAL TRAUMA ON SULFHYDRYL CONTENT OF PLASMA	
Bernard Shacter, Helen Supplee and Cecil Entenman	499
Effect of X-Radiation and Laparotomy on the Polysaccharide Content of Plasma: Relationship to Plasma Sulfhydryl Changes  Bernard Shacter, Helen Supplies and Cecil Entenman	508
No. 3. JUNE 1952	
Whole Body X-Irradiation of Obese Mice	
Willie W. Smith, W. H. Chapman and I. M. Alderman	511
CHANGES IN COMPOSITION OF TISSUES OF MICE AFTER EXPOSURE TO LOW PRES-	
SURE H. Cullumbine	515
MECHANISM OF DIFFERENCE IN GROWTH RATE BETWEEN MALE AND FEMALE RATS  K. S. Kim, D. F. Magee and A. C. Ivy	525
Capillary Fragility in Skin of the Albino Rat and Its Relation to the Hair Cycle George Kozam	529
Some Physiologic Responses to 5-Hydronytryptamine Creatinine Sulfate  John T. Correll, Leo F. Lyth, Stuart Long and John C. Vanderpoel	537
MEASUREMENT OF TOTAL BODY FAT IN LIVING RATS BY ABSORPTION OF CYCLO- PROPANE Gerson T. Lesser, Arnold G. Blumberg and J. Murray Steele	545
ELECTROLYTE CHANGES IN TISSUES OF CHRONIC THIAMINE DEFICIENT RATS AND THE INFLUENCE OF CERTAIN STEROIDS Louis J. Pecora	554
GLUCOSE UTILIZATION IN ACIDOTIC HEPATECTOMIZED DOGS AND EVISCERATED DOGS  Bruce Mackler, James Mithoefer, Harry Graubarth,	334
Peter Ammentor p and George M. Guest	561
Effect of Corticotropin, Cortisone and Desoxycorticosterone on Thyroid Weight of the Gottrogen-Treated Rat	
J. L. Gabrilove, W. R. Dorrance and L. J. Soffer	565
Dynamics of Calcium Metabolism: Time Distribution of Intravenously Administered Radiocalcium	
R. O. Thomas, T. A. Litovitz, M. I. Rubin and C. F. Geschickter	568
Sodium Conservation in Normal and Hypophysectomized Dogs Doris Rolf, A. Surtshin and H. L. White	576
POSTERIOR PITUITARY EXTRACTS AND EXCRETION OF ELECTROLYTES BY RAT	
Wilbur H. Sawyer	583

CONTENTS OF VOLUME 169	VII
EFFECTS OF EPINEPHRINE AND <i>l</i> -Nor-Epinephrine on Renal Excretion of Solutes During Mannitol Diuresis in Hydropenic Dog	
S. A. Kaplan, S. J. Fomon and S. Rapoport	588
SIGNIFICANCE OF CARBON DIOXIDE TENSION IN URINE  Thomas J. Kennedy, Jr., Jack Orloff and Robert W. Berliner	596
Nature and Significance of Reflex Connections Established by Large Af- ferent Fibers of Muscular Origin Yves Laporte and David P. C. Lloyd	609
An Electrophysiological Study of the Sympathetic Vasodilator Fibers of the Limb B. Folkow and B. E. Gernandt	622
Alterations in Electrical Activity of Hypothalamus Induced by Stress Stimuli R. W. Porter	629
Modification in Responses to Sodium of Nerve Fibers Treated With Drugs Frederick Crescitelli	638
Effects of Eserine-Veratrine Interaction on Mechanical Responses of Muscle  Alexander Sandow and Geraldine Kiebel	649
Effect of Neurotomy on Lipid Content of Striated Muscle Fred L. Humoller, Dorothy Hatch and A. R. McIntyre	654
CIRCULATION THROUGH KIDNEY DURING STIMULATION OF RENAL NERVES  Melvin A. Block, Khalil G. Wakim and Frank C. Mann	659
Renal Function During Stimulation of Renal Nerves  Melvin A. Block, Khalil G. Wakim and Frank C. Mann	670
EFFECT OF CONTROLLED HYDROGEN-ION CONCENTRATION ON PERIPHERAL VASCULAR TONE AND BLOOD FLOW IN INNERVATED HIND LEG OF DOG	
Nancy C. Kester, Alfred W. Richardson and Harold D. Green Movement of Blood in Vascular System After Removal of Heart of the	678
Toad Horacio Figueroa	688
Dynamics of Central Venous Resistance With Observations on Static Blood Pressure Arthur C. Guyton, James H. Satterfield and Jeff W. Harris	691
FUNDAMENTAL INTERACTIONS AND EFFECT OF STORAGE, ETHER, ADSORBANTS AND BLOOD CLOTTING ON PLASMA ANTITHROMBIN ACTIVITY	
Walter H. Seegers, Kent D. Miller, Edna B. Andrews and Robert C. Murphy Release of Heparin in Anaphylactic Shock in Irradiated and Non-Irra-	700
DIATED ANIMALS Frank C. Monkhouse, Edward Fidlar and John C. D. Barlow Ventricular Pre-Excitation in Isolated Perfused Heart	712
Howard B. Burchell	721
Hemolytic Action of Heparin in Lipemic Animals  C. B. Weld and John J. Spitzer	726
PRODUCTION OF PERSISTENT HYPERTENSION INDUCED IN THE RABBIT BY OCCLU- SION OF ARTERIES SUPPLYING THE BRAIN Sheldon Rosenfeld	733
Physiology of the Gastric Antrum Harry A. Oberhelman, Jr.,	133
Edward R. Woodward, Jose Ma. Zubiran and Lester R. Dragstedt  Comparison of Dentral and Onypolygelatin in Treatment of Hemorrhagic  Hypertension Arthur L: Gropper, Everett Williford Cockrell,	738
Lawrence G. Raisz and Edwin J. Pulaski	749
Stimulation of Gastric Secretion in Dogs by Parenterally Administered Fluids Ramon Villarreal, Charlotte Robertson and M. I. Grossman	757
Transport of Radioactive Iron in Intestina Lymph Ralph E. Pelerson and Joseph D. Mann	763



## Index to Volume 169

NOTE: Individual and types of drugs may be found under the heading, Drugs. Cross references are as follows: Body temperature, see Temperature; Body weight, see Weight; Cardiac, see Heart; Cerebral cortex, see Brain; Clotting, see Blood, coagulation; Exercise, see Work performance; Hepatic, see Liver; Hypoxia, see Anoxia; Plasma, see Blood; Pulmonary, see Lung; Renal, see Kidney; Work tolerance, see Work performance.

#### ABSORPTION

gastrointestinal transit and, 236 intestinal, 305 radiation and, 242

Acclimatization to carbon monoxide and low oxygen, 285

Acetylcholine

denervated heart and, 369 metabolism, 150, 649

synthesis, neuromuscular function and, 140 Acetylphenylhydrazine, red cell iron and, 194 Acidosis, glucose utilization and, 561

Acid secretion, fluids and, 757

Ackermann, Isabelle B., 491 Adenosinetriphosphate, myosin B threads and, 218, 223

Adrenal cortex

ammonia excretion and, 174

anoxia and, 350 low pressure and, 515

neuromuscular function and, 140

Adrenal insufficiency, desoxycorticosterone glucoside and, 278

Adrenal steroids, crystalline suspensions of, 118 Adrenaline, 22

denervated heart and, 369 kidney excretion and, 588

Adrenergic mediator substances, 11 Adsorbants, antithrombin and, 700

Alanis, J., 460

Alcohol, drowning and, 108 ALDERMAN, I. M., 491, 511

Alloxan, diabetogenic action of, 295

Amino acids absorption of, 305

bile acid and, 317 Ammentorp, P., 561

Ammonia excretion, 174

Ammonium chloride, insulin action and, 561 Andrews, Edna B., 700

ANKENEY, J. L., 363

Ankeney, J. L. Interrelations of pulmonary arterial, 'capillary' and left atrial pressures under experimental conditions, 40

#### Anoxia

low oxygen and carbon monoxide and, 285 lung circulation and, 460 mercurial diuretics and, 350 myocardial metabolism after, 66 tissue changes and, 515 tissue fluid and, 61

Anticoagulant, prothrombin utilization, 208 Antithrombin, 700

Antrum, gastric, 738

Atrophy, lipid content in, 654 Auricular-ventricular pressures, 412

AVIADO, D. M., JR., A. CERLETTI, J. ALANIS, P. H. BULLE AND C. F. SCHMIDT. Effects of anoxia on pressure, resistance and blood (P<sup>32</sup>) volume of pulmonary vessels, 460

AXELROD, D. R. AND R. F. PITTS. Anoxia as a factor in resistance to mercurial diuretics, 350

## B<sub>AEZ, S., 134</sub>

BAEZ, S., A. MAZUR AND E. SHORR. Role of the neurohypophysis in ferritin-induced antidiuresis, 123

BARGER, A. C., B. B. ROE AND G. S. RICHARD-SON. Relation of valvular lesions and of exercise to auricular pressure, work tolerance, and to development of chronic, congestive failure in dogs, 384

BARLOW, G., 118, 270

BARLOW, J. C. D., 712 BEHRENS, C. F., 208

BELKIN, M., 453 BERLINER, R. W., 596 BERNE, R. M., 363

Bile acid production, 309, 317, 337

BLOCK, M. A., K. G. WAKIM AND F. C. MANN. Circulation through kidney during stimulation of renal nerves, 659

Renal function during stimulation of renal nerves, 670

Blood

arteries, occlusion of, 733 bone, supply to, 26 calcium, 188 Blood-Continued

capillary hemorrhage, 529

circulation, 688

circulation, pulmonary, 34

coagulation, 700

eosinophil count and polysaccharide, 453

glucose utilization, 561

hemorrhagic hypotension, 749

heparin in, 712, 726

leucocyte and polysaccharide, 453

plasma inulin, 363

plasma polysaccharide, 508

plasma and radiation, 483

plasma sodium levels, 576

plasma sulfhydryl, 499

plasma volume expanders, 475

polysaccharide and, 453

prothrombin utilization in radiation, 208

pulmonary capillary pressure, 40

radiocalcium, 568

red cell iron, 194

serum vasoconstrictor substance, 537

thrombin, 700

vascular reflexes and, 471

vascular system, 688

water exchange rates and, 94

Blood flow

adrenaline and, 22

circulatory failure, 434, 442

hydrogen-ion concentration and, 678

hypertension, 733

kidney, through, 659, 670

Blood pressure, static, 691

Blood volume

anoxia and, 460

postnatal pulmonary, 34

BLUMBERG, A. G., 545

Body fat, cyclopropane and, 545

Body tissues, prolactin and, 301

Bone

blood supply to, 26

density, 26

BOUCEK, R. J., J. H. GRINDLAY AND H. B.

BURCHELL

Experimental constriction of inflow tracts in the heart: Analysis of circulatory

failure, 412

Experimental constrictive pericarditis: Analysis of induced circulatory failure, 434

BOWEN, W. J.

Effect of calcium, magnesium and рн on adenosine-triphosphatase activity of myo-

sin B threads, 218

Effects of divalent ions on shortening of myosin B threads, 223

Brain

acetylcholine synthesis, 150

hypertension and, 733

stress, response, 629

Brecher, G. A. Mechanism of venous flow under different degrees of aspiration, 423

BROOKS, C. McC., 377

Brown, E. B., Jr. And F. Miller. Ventricular fibrillation following a rapid fall in alveolar carbon dioxide concentration, 56

BULLE, P. H., 460

BURCHELL, H. B., 434, 442

Burchell, H. B. Ventricular pre-excitation in the isolated perfused heart, 721

ALCIUM

metabolism, 568

myosin B threads and, 218

Capillary fragility, hair cycle and, 529

Carbon dioxide

alveolar, 55

tension, 596

Carbon monoxide, anoxia and, 285 Cardiac resistance to flow, 412

Central venous resistance, 601

CERLETTI, A., 460

CHANUTIN, A., S. LUDEWIG AND ELIZABETH A. LENTZ. Effect of thermal injury and x-irradiation on serum iron concentration and on iron contents of liver, spleen and kidney of rats, 203

CHAPMAN, W. H., 511

CHAPPELLE, E. W., 194

Cholate, bile acid production and, 317

Choleretic compounds, 337

Cholic acid, diet and, 300

CLARK, R. T., JR. AND A. B. OTIS. Comparative studies on acclimatization of mice to carbon monoxide and to low oxygen, 285

CLARK, W. F., 194

COCKRELL, E. W., 749

Сонх, D. V., 188

COLLINS, E., 118, 270, 278

Compound F, acetylcholine synthesis and, 150

Congestive failure, 384

COOLBAUGH, C. C. Effects of reduced blood supply on bone, 26

CORRELL, J. T., L. F. LYTH, S. LONG AND J. C. VANDERPOEL. Some physiologic responses to 5-hydroxytryptamine creatinine sulfate, 537

Cortisone bioassay, 270

Creatinine excretion, 357 Creatinine sulfate, serotonin, 537

CRESCITELLI, F.

Modification in responses to sodium of nerve fibers treated with drugs, 638

Some features in responses of different nerve fiber types to a deficiency of sodium, I

CRONKITE, E. P., 208

Crystalline suspensions of adrenal steroids, 118

CULLUMBINE, H. Changes in composition of tissues of mice after exposure to low pressure, 515 Cyclopropane, body fat and, 545

Denydration, thermal stress and, 102 Dextran hypotension and, 749

plasma volume expander, 475 Dextrose, fluid partition, 198 Diabetes, alloxan, diet and, 295 Diet

> alloxan diabetes and, 295 bile acid and, 309, 317 fasting realimentation, 248 growth rate and, 525 protein and radiation, 483, 491 thiamine, 554

Diuresis
anti, ferritin-induced, 123, 134
denervation, 159
mannitol, epinephrine and, 588
Diuretics, mercurial, anoxia and, 350

DORRANCE, W. R., 565 DRAGSTEDT, L. R., 738 Drowning survival, 108 Drugs

adrenaline, 11 adrenocorticotrophic hormone, 150 blood flow and, 22 corticotropin, 565 cortisone, 140, 270, 565 cortisone acetate, 150 desoxycorticosterone, 118, 565 desoxycorticosterone acetate, 278 desoxycorticosterone glucoside, 278 Dicumarol, 78 dinitrophenol, 78 epinephrine, 588 ether, 700 ether and ventricular fibrillation, 50 heparin, 712, 726 nerve blocking, 638 Salyrgan, 350

EDWARDS, W. H., 102
Electrical activity
renal nerves, of, 659
stress, of hypothalamus, 629
vasodilator fibers, in, 622
Electrocardiogram
hypertension, in, 74
ventricular pre-excitation, 721

sulfaguanidine, 111 sulfhydryl, 134, 499, 508

sympathomimetic, 11

Electrocardiography, 400 Electrolytes cortisone bioassay and, 270 creatinine excretion and, 357 epinephrine and, 588 glomerular filtration rate and, 159 nerve blocking drugs and, 638 pituitary extracts and, 583 sodium conservation, 576 thiamine and, 554 Endocrine products, drowning and, 108 Energy metabolism of smooth muscle, 326 ENTENMAN, C., 483, 499, 508 Enzyme, myosin B, 218 Eosinophil morphology, 453 Eserine-veratrine interaction, 640 EVERETT, N. B. Early postnatal changes in pulmonary blood volume of guinea pig, 34 EZELL, H. K., 78

 $F_{
m ASTING}$ , realimentation after, 248

Fat
measurement, 545
radiation and, 511
FEDOR, E. J., 118, 270
FERGUSON, T. B., 255
Ferritin, antidiuretic effect of, 123, 134
Fertility, sulfaguanidine and, 111
Fibers
afferent, reflex connections and, 609
nerve, drugs and, 638
vasodilator, 622
Fibrillation, ventricular, 50, 56
FIDLAR, E., 712
FIGUEROA, H. Movement of blood in the ventricular, 50, 56

FIGUEROA, H. Movement of blood in the vascular system after removal of the heart of the toad, 688 FINGL. E. Tubular excretion of creatinine in

FINGL, E. Tubular excretion of creatinine in rat, 357
Fluid partition between lymph and urine, 198

Fluids, gastric secretion and, 757 FOGELMAN, M. J., P. O.'B. MONTGOMERY AND C. A. MOYER. Internal water exchange rates following hemorrhage in splenectomized dogs,

FOLKOW, B. AND B. E. GERNANDT. An electrophysiological study of the sympathetic vasodilator fibers of the limb, 622

Fomon, S. J., 588 Food intake, regulation of, 229

FORSTER, R. E., II AND T. B. FERGUSON. Relationship between hypothalamic temperature and thermoregulatory effectors in unanesthetized cat, 255

FURCHGOTT, R. F. AND MARILYN R. WALES. Utilization of compounds of Krebs cycle for contraction energy by rabbit intestinal smooth muscle, 326 GABRILOVE, J. L., W. R. DORRANCE AND L. J. SOFFER. Effect of corticotropin, cortisone and desoxycorticosterone on thyroid weight of goitrogen-treated rat, 565

Gastric antrum, 738

Gastric fistula, food intake regulation, 299 Gastric secretion, 757

Gastrointestinal transit, 236

radiation on, 242

GAZES, P. C., 78

GERNANDT, B. E., 622

GESCHICKTER, C. F., 568

Glomerular filtration rate, urine excretion and, 150

Glucose utilization, 561

Glucoside, water-soluble, of desoxycorticosterone, 278

Glutaminase, renal, 174

Goitrogen, corticotropin and, 565

GOLDBERG, L. I., 78

GOODMAN, R. D., A. E. LEWIS AND E. A. SCHUCK. Effects of x-irradiation on gastrointestinal transit and absorption availability,

GOODMAN, R. D., A. E. LEWIS, E. A. SCHUCK AND M. A. GREENFIELD. Gastrointestinal transit, 236

GOTTSCHALK, C. W. A comparative study of renal interstitial pressure, 180

GRAUBARTH, H., 561

GREEN, H. D., 678

GREENBERG, R. AND C. B. LAMBETH. Response of chronic denervated heart to acetylcholine and epinephrine, 369

GREENE, R. W. AND L. A. SAPIRSTEIN. Total body sodium, potassium and nitrogen in rats made hypertensive by subtotal nephrectomy, 343

GREENFIELD, M. A., 236

GRINDLAY, J. H., 434, 442

GROLLMAN, A., J. A. McLean, E. E. MUIRHEAD AND M. M. Scurry. Electrocardiogram of normal dog and its alteration in acute malignant hypertension induced by bilateral nephrectomy, 74

GROPPER, A. L., E. W. COCKRELL, L. G. RAISZ AND E. J. PULASKI. A comparison of dextran and oxypolygelatin in the treatment of hemor-

rhage hypotension, 749 GROSSMAN, M. I., 229, 757

Growth rate, difference in male and female, 525 GUEST, G. M., 561

GÜNTHER, B. AND E. M. LANDIS. Cardiac resistance to flow; pressure-flow relationships in quiescent and beating turtle heart, 412

GUYTON, A. C., J. H. SATTERFIELD AND J. W. HARRIS. Dynamics of central venous resistance with observations on static blood pressure, 691

HAHN, P. F., 194 Hair cycle, capillary fragility and, 529

HANDLER, P., 305 HANDLER, P. AND D. V. COHN. Effect of parathyroid extract on renal function, 188

HANNA, C. B., 78 HARRIS, J. W., 691 HATCH, DOROTHY, 654 HAUSCHILDT, J. D., 483

Heart

adrenaline and, 22 arterial pressure and anoxia, 460 eardiac excitability, 377 cardiac output, 403, 601 cardiac resistance to flow, 412 circulatory failure, 434, 442 denervated, 369 electrocardiography, 400 fibrillation, 691 hyperpyrexia on, 78 hypertension, electrocardiogram, 74 metabolism after anoxia, 66 myocardium, cooling of, 400 pericarditis, constrictive, 434 pulmonary capillary pressure, 40 reflex circulatory changes, 471 tissue fluid in anoxia, 61 vagal stimulation and, 377 valvular lesions, 384 vascular system, blood in, 688 venous flow, mechanism of, 423 venous inflow to, 442 ventricular fibrillation, 50

ventricular fibrillation and alveolar carbon dioxide, 56 ventricular pre-excitation in, 721

ventricular relaxation, 403

heart and, 78 injury and serum iron, 203 water consumption and, 102

Hemolysis, heparin and, 726

Hemorrhage

capillary, 529 plasma volume expander and, 475 treatment of, 740

water exchange rates in, 94

Heparin

in shock, 712

lipemic animals and, 726

HIESTAND, W. A., F. W. STEMLER AND J. E. WIEBERS. Effect of ambient water temperature, alcohol, and certain endocrine products on survival from drowning in rats and mice,

HINES, H. M., 22

HOFFMAN, B. F., A. A. SIEBENS AND C. MCC.

Brooks. Effect of vagal stimulation on cardiac excitability, 377

HUMOLLER, F. L., DOROTHY HATCH AND A. R. MCINTYRE. Effect of neurotomy in lipid content of striated muscle, 654

Hydrogen-ion concentration of blood, 678 5-Hydroxytryptamine creatinine sulfate, 537 Hypertension

blood flow to brain and, 733 body sodium and, 343 electrocardiogram in, 74

Hypophysectomy, sodium conservation and, 576 Hypotension, dextran and oxypolygelatin in treatment of, 749

Hypothalamus stress and, 620

thermoregulatory effectors and, 255

Imig, C. J., Barbara F. Randall and H. M.
Hines. Effects of epinephrine and norepinephrine on blood flow through normal
and denervated limb of dogs, 22
Inflow tracts, constriction of, 442
Insulin, acidosis and, 561
Interstitial pressure, renal, 180

Intestinal lymph, radioactive iron in, 763 Intestine amino acids, absorption of, 305 gastro-, transit, 236

Krebs cycle in smooth muscle, 326 radiation, 242 Inulin excretion, 363

Inulin excretion, 363
Ions, divalent, myosin B and, 223
Iron

radioactive, intestinal lymph, in, 763 serum, injury and X-ray, after, 203 stores, red cell iron and, 194 Ischemia, cerebral, 733 Ivy, A. C., 309, 317, 337, 525

Jackson, D. P., E. P. Cronkite, G. J. Jacobs and C. F. Behrens. Prothrombin utilization in radiation injury, 208 Jacobs, G. J., 208

Kamin, H. and P. Handler. Effect of presence of other amino acids upon intestinal absorption of single amino acids in rat, 305

KAPLAN, S. A., S. J. FOMON AND S. RAPAPORT. Effects of epinephrine and I-nor-epinephrine on renal excretion of solutes during mannitol diuresis in hydropenic dog, 588

KENNEDY, T. J., JR., J. ORLOFF AND R. W. BERLINER. Significance of carbon dioxide tension in urine, 596 KESTER, NANCY C., A. W. RICHARDSON AND H.
D. GREEN. Effect of controlled hydrogen-ion
concentration on peripheral vascular tone
and blood flow in innervated hind leg of the
dog, 678

Ketochol, bile output and, 337 Kidney

amino acid absorption in, 305 carbon dioxide tension, 596 epinephrine and, 588 fluid partition between lymph, 198 interstitial pressure, 180 inulia excretion, 363 nerve stimulation, 650, 670 parathyroid extract and, 188 renal glutaminase, 174 tubular excretion of creatinine, 357 tubular excretion of creatinine, 357

KIEBEL, GERALDINE, 649

KIM, K. S., 309, 317, 337
KIM, K. S., D. F. MAGEE AND A. C. IVY. Mechanism of difference in growth rate between male and female rats, 525

Kinetics of inulin excretion, 363

KOZAM, G. Capillary fragility in the skin of albino rat and its relation to the hair cycle, 529 Krebs cycle, 320 Kreill, W. A., 295

Lамвети, С. В., 369

LANDIS, E. M., 412 LANDIS, A. M. Sympathetic receptor action, 11 Laparotomy, plasma polysaccharide and, 508 LAPORTE, Y. AND D. P. C. LLOYD. Nature and significance of reflex connections established by large afferent fibers of muscular origin, 609 LEARY, J. S., 78

Lemley, Janet M. and G. R. Meneely.

Distribution of tissue fluid in hearts of rats
subjected to anoxia, 61

Effects of anoxia on metabolism of myo-

cardial tissue, 66

LENTZ, ELIZABETH A., 203

LEPESCHKIN, E. Distortion of electrocardiographic effects of intravenously injected
solutions due to cooling of myocardium, 400

LESSER, G. T., A. G. BLUMBERG AND J. M.

STEELE. Measurement of total body fat in
living rats by absorption of cyclopropane, 545

LEVY, M. N., J. L. ANKENEY AND R. M. BERNE.

Kinetics of inulin distribution and excretion

following a constant infusion, 363 LEWIS, A. E., 236, 242 Life-span, adrenal steroids, 118 Lipemia, heparin and, 726 Lipid content of striated muscle, 654 Lithium, sodium deficiency and, 1 LITOVITZ, T. A., 568 Liver

bile acid production, 309, 317 ferritin and, 123, 134

LLOYD, D. P. C., 609 LONG, S., 537

LUDEWIG, S., 203

Lung

anoxia and circulation, 460 capillary pressure, 40 postnatal blood volume, 34

Lymph

fluid partition between, 198 resorption of iron by, 763

LYNN, R. B. AND F. A. SIMEONE. Observations on reflex vascular responses to stimulation of blood vessels and perivascular tissues in the dog, 471

LYTH, L. F., 537

 ${f M}$ ackler, B., J. Mithoefer, H. Graubarth, P. Ammentorp and G. M. Guest. Glucose utilization in acidotic hepatectomized dogs and eviscerated dogs, 561

MAGEE, D. F., 525

MAGEE, D. F., K. S. KIM AND A. C. IVY. Action of some synthetic choleretic compounds in chronic biliary fistula dogs, 337 Dietary factors influencing output of bile acids. Role of amino acids, 317

MAGEE, D. F., K. S. KIM, V. C. PESSOA AND A. C. Ivy. Dietary factors influencing output of bile acids: Endogenous production of bile acids, 300

Magnesium, myosin B threads and, 218

MANN, F. C., 659, 670 MANN, J. D., 763

Marey's Law, 369 MARTYNIUK, E., 229

MAZUR, A., 123

MAZUR, A., S. BAEZ AND E. SHORR. Relation of sulfhydryl groups in ferritin to its antidiuretic action, 134

McGuire, T. F., 248

McIntyre, A. R., 654 McLean, J. A., 74

MEITES, J., 301

MENEELY, G. R., 61, 66 Mercurials, anoxia and, 350

Metabolism

acetylcholine, 649 after anoxia, myocardial, 66 calcium, 568

energy, smooth muscle, 326 fat, 654

MILLER, F., 56 MILLER, K. D., 700 MITHOEFER, J., 561

MONKHOUSE, F. C., E. FIDLAR AND J. C. D. BARLOW. Release of heparin in anaphylactic shock in irradiated and non-irradiated animals, 712

MONTGOMERY, P. O.'B., 94

MOYER, C. A., 94 MUELLER, C. B., 159

MUIRHEAD, E. E., 74 MURPHY, R. C., 700

Muscle

afferent fibers, 600

smooth, energy, metabolism of, 326 striated, 654

vasodilator fibers and, 622 veratrinized, 640

Muscular contraction, myosin B threads, 223 Myosin B threads, 218, 223

NERVE

denervated limb and blood flow, 22 muscle afferent fibers, 609 renal, stimulation, 650, 670

Nerve blocking drugs, 638

Nerve fiber types, sodium deficiency and, 1 Neurohypophysis, antidiuresis and, 123

Neuromuscular function, pituitary and, 140

Neurotomy, lipid content and, 654 Nitrogen, hypertension and, 343 Nor-epinephrine, 22

kidney excretion and, 588

OBERHELMAN, H. A., JR., E. R. WOODWARD, J. M. ZUBIRAN AND L. R. DRAGSTEDT. Physiology of gastric antrum, 738

OPDYKE, D. F. Effect of changes in initial tension, initial volume and epinephrine on ventricular relaxation process, 403

ORLOFF, J., 596 Otis, A. B., 285

Oxygen, anoxia and low, 285 Oxygen consumption, 285

radiation and, 491

Oxypolygelatin

hypotension and, 749 plasma volume expander, 475

Parathyrom extract, kidney function and, 188 PECORA, L. J. Electrolyte changes in tissues of chronic thiamine deficient rats and influence of certain steroids, 554

Pericarditis, experimental constrictive, 434

PERLMUTT, J., 278 PESSOA, V. C., 309

Peterson, R. E. and J. D. Mann. Transport of radioactive iron in intestinal lymph, 763 PH

blood, of, 678

myosin B threads and, 218 Phosphaturia, parathyroid extract and, 188

Phosphorylysis, myosin B threads, 223

PITTS, R. F., 350 Pituitary

extracts, electrolyte excretion and, 583 inactivation of, 301 neuromuscular function and, 140

Pituitary-adrenal response to stress, 629

Plasma antithrombin activity, 700 Plasma volume expanders, 475

POEL, W. E. AND M. BELKIN. Variations in eosinophil morphology and leukocyte counts in rat following injection of a tumor-necrotizing bacterial polysaccharide, 453

Polysaccharide hematologic effects of, 453 plasma, 508

PORTER, R. W. Alterations in electrical activity of the hypothalamus induced by stress stim-

Posterior pituitary secretion, 583 Postnatal pulmonary blood volume, 34 Potassium

cortisone and, 270 hypertension and, 343 Potentials, membrane, 1 Pressure-flow relationships, 412

Pressure, low, tissue changes and, 515 Prolactin, inactivation of, 301 Proteins

plasma, radiation and, 483 radiation and, 491 realimentation with, after fasting, 248 Prothrombin utilization, 208 PRYSTOWSKY, ROSE P., 78 Pulaski, E. J., 475, 749 Pyrexia, hypo-, heart and, 78

RADIATION

body weight and, 511 calcium, 568 dietary protein and, 491 gastrointestinal transit on, 242 iron in intestinal lymph, 763 plasma changes and, 483 plasma polysaccharide and, 508 plasma sulfhydryl and, 400 prothrombin utilization in, 208 serum iron after, 203 shock and, 712

Radiomimetic substances, 499

RAISZ, L. G., 749

RAISZ, L. G. AND E. J. PULASKI. A comparison of efficacy of dextran, oxypolygelatin, plasma and saline as plasma volume expanders, 475

RANDALL, BARBARA F., 22 RAPOPORT, S., 588 Receptors, sympathetic, 11 Red cell iron stores and, 194 Reflex connections, afferent fibers and, 600 Reflex control of body temperature, 255

Reflex vascular responses, 471 REINHARDT, W. O. Partition between lymph and urine of intravenously administered

fluids, 105 Respiration

alveolar carbon dioxide, 56 anoxia and, 460 capillary pressure and, 40 pulmonary, at birth, 34 tissue, 66 venous flow and, 423

RICHARDSON, A. W., 678 RICHARDSON, G. S., 384 ROBERTSON, CHARLOTTE, 757

RODRIGUEZ, R. R. AND W. A. KREHL. Influence of diet on incidence of alloxan diabetes, 295

Roe, B. B., 384 Rogers, P. V. Partial sterilization caused by feeding sulfaguanidine to rats, 111

ROLF, DORIS, 174

ROLF, DORIS, A. SURTSHIN AND H. L. WHITE. Sodium conservation in normal and hypophysectomized dogs, 576

ROSENFELD, S. Production of persistent hypertension induced in the rabbit by occlusion of arteries supplying the brain, 732 RUBIN, M. I., 568

Saline, plasma volume expander, 475 Salts, myosin B threads and, 223 SANDOW, A. AND GERALDINE KIEBEL. Effects of eserine-veratrine interaction on mechanical responses of muscle, 640

SAPIRSTEIN, L. A., 343 SATTERFIELD, J. H., 691

SAWYER, W. H. Posterior pituitary extracts and excretion of electrolytes by the rat, 583

SCHMIDT, C. F., 460 SCHUCK, E. A., 236, 242 SCURRY, M. M., 74 SEAY, P., 278

SEEGER, W. H., K. D. MILLER, EDNA B. AN-DREWS AND R. C. MURPHY. Fundamental interactions and effect of storage, ether, adsorbants and blood clotting in plasma antithrombin activity, 700

Serum iron concentration, 203

Sex difference, growth rate, 525 SGOURIS, J. T. AND J. MEITES. Inactivation of prolactin by body tissues in vitro, 301 SHACTER, B., HELEN SUPPLEE AND C. ENTEN-

Effect of x-radiation and laparotomy on the polysaccharide content of plasma: Relationship to plasma sulfhydryl changes, 508

Effect of x-radiation, radiomimetic substances and surgical trauma on sulfhydryl content of plasma, 499

SHARE, I., E. MARTYNIUK AND M. I. GROSS-MAN. Effect of prolonged intragastric feeding on oral food intake in dogs, 229

Shock

alveolar carbon dioxide, 56 heparin release in, 712 water exchange rates in, 94

SHORR, E., 123, 134
SIEBENS, A. A., 377
SIMEONE, F. A., 471
Skin, capillary fragility, 529

SMITH, W. W., ISABELLE B. ACKERMANN AND I. M. ALDERMAN. Effects of dietary protein and methionine on the x-irradiated rat, 491

SMITH, W. W., W. H. CHAPMAN AND I. M. ALDERMAN. Whole body x-irradiation of obese mice, 511

Sodium

conservation, 576 deficiency, 1 hypertension and, 343 nerve blocking drugs and, 638 SOFFER, L. J., 565 Solutes, electrolyte, epinephrine an

Solutes, electrolyte, epinephrine and, 588 SPITZER, J. J., 726

STEELE, J. M., 545 STEMLER, F. W., 108 Sterilization, 111 Steroids

adrenal, 118 thiamine and, 554

Stomach

food intake regulation, 229 gastric antrum, 738 gastric secretion, 757 gastrointestinal transit, 236 radiation and gastrointestinal transit, 242

Stress

dehydration and thermal, 102 fasting, realimentation, 258 hypothalamus and, 629 plasma sulfhydryl and, 499 prothrombin utilization in radiation, 208 thermal injury and X-ray, 203

Sulfaguanidine, sterilization by, 111 Sulfhydryl groups in ferritin, 134

SUPPLEE, HELEN, 499, 508

Supplee, Helen, J. D. Hauschildt and C. Entenman. Plasma proteins and plasma volume in rats following total body x-irradiation, 483

SURTSHIN, A., 570

Surtshin, A., C. B. Mueller and H. L. White. Effect of acute changes in glomerular filtration rate on water and electrolyte excretion: mechanism of denervation diuresis, 159 Swingle, W. W., E. Collins, G. Barlow and E. J. Fedor.

sone on adrenalectomized dogs, 270

E. J. Fedor.

Bioassay and physiological effects of corti-

Effect of crystalline suspensions of adrenal steroids upon life-span of adrenalectomized dogs, 118

SWINGLE, W. W., J. PERLMUTT, P. SEAY AND E. COLLINS. An experimental study of desoxycorticosterone acetate and water-soluble glucoside of desoxycorticosterone, 278

Sympathetic receptor action, 11

TEMPERATURE

body and water, 102 cooling of myocardium, 400 drowning survival and water, 108 hypothalamic, 255 thermoregulation and, 255

Tension, initial, 403

Thermoregulation, hypothalamic temperature and, 255

Thiamine, electrolytes and, 554

Thomas, R. O., T. A. Litovitz, M. I. Rubin and C. F. Geschickter. Dynamics of calcium metabolism: Time distribution of intravenously administered radiocalcium, 568

Thorax, electrocardiographic data, 74

Thyroid

sulfaguanidine and, 111 weight, 565

Tissue

fluid in anoxic heart, 61 low pressure and changes in, 515 myocardial, 66 perivascular, 471 prolactin and, 301 thiamine and, 554

TORDA, CLARA AND H. G. WOLFF.

Effects of adrenocorticotrophic hormone, cortisone acetate, and 17-hydroxycorticosterone-21-acetate on acetylcholine metabolism, 150

Effect of pituitary hormones, cortisone and adrenalectomy on some aspects of neuromuscular function and acetylcholine synthesis, 140

Tubular excretion of creatinine, 357 Tumor, polysaccharide and, 453

URINE

carbon dioxide tension in, 596 fluid partition between, 198 glomerular filtration rate and, 159

V AGAL stimulation, 377 Valvular lesions, congestive failure and, 384 VANDERPOEL, J. C., 537 Vascular system, blood in, 688 Vascular tone, peripheral, 678 Vasoconstrictor property of serum, 537 Vasodilator fibers, sympathetic, 622
Veins, mechanism of flow, 423
Ventricular fibrillation, 50, 56
Ventricular initial tension, 403
Ventricular pre-excitation, 721
Veratrine, muscle, in, 640
VILLARREAL, R., CHARLOTTE ROBERTSON AND
M. I. GROSSMAN. Stimulation of gastric secretion in dogs by parenterally administered fluids, 757

WAKIM, K. G., 659, 670
WALDMANN, E. B., 248
WALES, MARILYN R., 326
WALKER, S. M. Ventricular fibrillation induced
by ether inhalation in rat, 50
WALTON, R. P., L. I. GOLDBERG, P. C. GAZES,
J. S. LEARY, H. K. EZELL, C. B. HANNA AND
ROSE P. PRYSTOWSKY. Effects of hypernyrexia

Rose P. Prystowsky. Effects of hyperpyrexia on the heart in situ: Studies with Dicumarol, dinitrophenol and external heat, 78

Water

anoxia, in heart tissue, 61
antidiuretic effects of ferritin, 134
dehydration and thermal stress, 102
exchange rates, 94
ferritin-induced antidiuresis, 123
glomerular filtration rate and, 159
drowning and, temperature, 108
Weight, body

cyclopropane and, 545 growth rate difference, 525 radiation and, 511 Weld, C. B. and J. J. Spitzer. Hemolytic action of heparin in lipemic animals, 726

West, H. D., P. F. Hahn, W. F. Clark and E. W. Chappelle. Labeled iron stores in study of iron liberated during red cell destruction by acetylphenylhydrazine, 194

WHITE, H. L., 159, 576 WHITE, H. L. AND DORIS ROLF. Renal glutami-

nase and ammonia excretion, 174

WIEBERS, J. E., 108
WILHELMJ, C. M., T. F. McGuire and E. B.
WALDMANN. Stress of realimentation with
protein or carbohydrate following prolonged
fasting, 248

WILSON, W. O. AND W. H. EDWARDS. Response of hens under thermal stress to dehydration and chilled drinking water, 102

Wolff, H. G., 140, 150
Wolff-Parkinson-White syndrome, 721
Woodward, E. R., 738
Work performance

Work performance congestive failure and, 384 metabolism of smooth muscle, 326

X-RAY

body weight and, 511 dietary protein and, 491 plasma changes and, 483 plasma polysaccharide and, 508 plasma sulfhydryl and, 499

 $Z_{\text{ubiran, J. M., 738}}$ 

# THE AMERICAN JOURNAL OF PHYSIOLOGY

**VOLUME 170** 

July-September 1952

#### BOARD OF PUBLICATION TRUSTEES

W. O. FENN, Chairman

W. F. HAMILTON

R. F. PITTS

#### EDITORIAL BOARD

E. F. ADOLPH A. C. Burton J. H. COMROE, JR. R. G. DAGGS H. J. DEUEL, JR. D. B. DILL H. E. Essex L. B. FLEXNER

A. P. GAGGE C. L. GEMMILL ALFRED GILMAN T. C. RUCH
ASHTON GRAYBIEL ERNST SIMONSON
FRANCES HELLEBRANDT H. B. STEINBACH Alfred Gilman Ashton Graybiel D. J. INGLE L. N. KATZ E. M. LANDIS

D. P. C. LLOYD DAVID RAPPORT A. H. STEINHAUS J. E. THOMAS L. M. TOCANTINS

MILTON O. LEE, Managing Editor SARA F. LESLIE, Secretary of Publications

THE AMERICAN PHYSIOLOGICAL SOCIETY Washington, D. C.

COPYRIGHT 1952, BY
THE AMERICAN PHYSIOLOGICAL SOCIETY, INC.

PRINTED IN THE UNITED STATES OF AMERICA
BY WAVERLY PRESS, INC., BALTIMORE, MARYLAND

# Contents of Volume 170

No. 1. JULY 1952

Mechanism of Plasma Protein Changes Following Saline Infusions  Karlman Wasserman and H. S. Mayerson	. 1
EFFECT OF DESOXYCORTICOSTERONE GLUCOSIDE ON RENAL TUBULAR REABSORP- TION OF GLUCOSE IN DOGS Agamemnon Despopoulos and Edwin H. Kau/man	11
Effect of Atropine on Intestinal Absorption of Water and Chloride $\lambda$ - $D$ . $D$ . Blickenstaff and $L$ . $J$ . Lewis	17
Effects of Adrenal Medullary Hormones on Renal Excretion of Water and Electrolytes $W.\ J.\ Eversole,\ F.\ A.\ Giere\ and\ M.\ H.\ Rock$	24
Inhibition of the Renal Tubular Transport of p-Aminohippurate (PAH) and Phenolsulfonphthalein (PSP) as Affected by Acetate  F. E. Shideman, Robert C. Rathbun and Fernley Stoneman	31
Measurement of Renal Gluconeogenesis  Jesse L. Bollman and John H. Grindlay	38
RENAL TUBULAR EXCRETION OF UREA IN KANGAROO RATS Bodil Schmidt-Nielsen	45
EFFECT OF ADRENALECTOMY ON EXPERIMENTAL RENAL HYPERTENSION IN THE DOG Wade Williams, Charles Whisnant and William T. Filts, Jr.	
EFFECTS OF URETERAL PRESSURE INCREASE ON RENAL HEMODYNAMICS AND THE HANDLING OF ELECTROLYTES AND WATER  Ewald E. Selkurt, Martin Brandjonbrener and Herman M. Geller	
FURTHER STUDIES ON INFLUENCE OF AGE AND DIET UPON REPRODUCTIVE SENES- CENCE IN STRAIN A FEMALE MICE  Maurice B. Visscher, Joseph T. King and Y. Chiung Puh Lee	
COMPARISON OF SOME METABOLIC AND MORPHOLOGIC EFFECTS OF CORTISONE AND HYDROCORTISONE GIVEN BY CONTINUOUS INJECTION TO RATS  Dwight J. Ingle and Robert C. Meeks	
Metabolism of Tissues Excised from Thyroxine-Injected Rats $S,B,Barker$ and $H,M,Klitgaard$	81
UTILIZATION OF CARBOHYDRATE BY EXTRAHEPATIC TISSUES OF THE ADRENAL- ECTOMIZED DOG	
Clarence Cohn, Bertram Katz, Bernice Huddlestun, Muriel Kolinsky and Rachmiel Levine	
Self-Sustaining, Post-DCA Hypertensive Cardiovascular Disease D. M. Green, F. J. Saunders, N. Wahlgren and R. L. Craig	94
MECHANISMS OF DESOXYCORTICOSTERONE ACTION. VII. INFLUENCE OF THE PITUITARY  D. M. Green, F. J. Saunders, N. Wahlgren, F. J. McDonough and J. M. Clampii	
Relative Distribution Patterns of Three Brain Enzymes, Carbonic An- hydrase, Choline Esterase and Acetyl Phosphatase Winifred Ashby, Ray F. Garzoli and Ernest M. Schuster	
A Single Numerical Correlation Between the Quotient Q-T/T-Q and Cardiac Rate in Healthy Adults  Desiderio Gross	

$\begin{array}{c} \text{Influence of Age on Rate of Respiration of Sliced Cardiac Muscle} \\ Albert \textit{Wollenberger and Jo'Ann Jehl} \end{array}$	126
VASOMOTOR EFFECTS OF ELECTRICAL STIMULATION Frank Girling	131
Bleeding Volume of the Unanesthetized Dog C. I. Wang, S. L. Einhorn, H. J. Thompson, Jr., and W. W. Walcott	136
Effects of Anesthesia on Bleeding Volume in the Dog C. I. Wang and W. W. Walcott	143
FIBRIN CLOT STRUCTURE DURING CLOTTING AS OBSERVED IN UNSUPPORTED FILMS UNDER ELECTRON MICROSCOPE Peter R. Morrison and Charles L. Scudder	147
VITAMIN B <sub>6</sub> AND HEMATOPOIESIS IN THE RAT  W. W. Hawkins, Bohdan Lechow, and Mary K. Evans	155
WHITE BLOOD CELLS AND LYMPHOID TISSUE IN VITAMIN B6 INSUFFICIENCY W. W. Hawkins and Mary K. Evans	160
Some Metabolic Factors Influencing the Course of Thiopental Anesthesia in Dogs	
Walter M. Booker, A. H. Maloney, James R. Tureman and Claudia Ratliff	168
A Comparison of Plasma Substitutes (Dentran, Polyvinylpyrrolidone and Oxypolygelatin) With Saline Therapy in Treatment of Experimental Tourniquet and Burn Shock in Mice  R. Carl Millican, Edward F. Stohlman and Robert W. Mowry	100
TRAUMATIC SHOCK IN MICE. COMPARISON OF SURVIVAL RATES FOLLOWING THER-	173
APY R. Carl Millican, Herbert Tabor and Sanford M. Rosenthal	179
TRAUMATIC SHOCK IN MICE. ACUTE HEMODYNAMIC EFFECTS OF THERAPY  R. Carl Millican, Herbert Tabor, E. F. Stohlman and Sanford M. Rosenthal	187
Effect of Source of Blood Sample on Total White Cell Count of the Rat $F.\ H.\ Quimby\ and\ L.\ G.\ Goff$	196
The Small Intestine as a Factor in Regulation of Eating Robert G. Hill, E. C. Ison, W. W. Jones and J. W. Archdeacon	201
EFFECT OF HISTAMINE IN BEESWAX-SESAME OIL MIXTURE ON CANINE EXTERNAL PANCREATIC SECRETION AND ON THE RESISTANCE OF DUODENAL MUCOSA TO TRAUMA  George A. Hallenbeck and George L. Jordan, Jr.	206
Effect of Increased Secretory Pressure on Canine Pancreatic Secretion  George L. Jordan, Jr., and George A. Hallenbeck	211
Azide-Sensitive Potential Difference Across the Eye-Bulb Werner $K.\ Noell$	217
No. 2 AUGUST 1952	
Urine Flow and Solute Excretion During Osmotic Diuresis in Hydrated Dogs: Role of Distal Tubule in the Production of Hypotonic Urine Clark D. West, S. A. Kaplan, S. J. Fomon and S. Rapoport	239
Effect of Osmotic and Mercurial Diuresis on Simultaneous Water Diuresis $Laurence\ G.\ Wesson, Jr.\ and\ W.\ Parker\ Anslow, Jr.$	255
Inhibition of Cardiovascular-Renal Effects of DCA by Pitressin Sydney M. Friedman, Constance L. Friedman and Miyoshi Nakashima	270

### CONTENTS OF VOLUME 170

MEASUREMENT OF CARDIAC OUTPUT IN THE DOG BY THE SIMULTANEOUS INJECTION OF DYE AND RADIOACTIVE RED CELLS	
Hampden C. Lawson, W. F. Cantrell, J. E. Shaw, D. L. Blackburn and Samuel Adams	277
An Index to the Bleeding Volume of the Dog John W. Remington	285
EFFECTS OF EXPERIMENTAL CONCUSSION ON BLOOD FLOW, ARTERIAL PRESSURE AND CARDIAC RATE George W. Brown, Marjorie L. Brown and Harry M. Hines	294
METABOLISM OF THE HEART IN RELATION TO DRUG ACTION. VII. ENERGY SOURCES FOR THE ISOLATED ELECTRICALLY-DRIVEN RAT VENTRICLE STRIP David T. Masuoka, David A. Berman and Paul R. Saunders	301
Influence of Carotid Sinus and Aortic Buffer Reflexes and Tetraethylammonium Chloride on Vascular Reactivity to Angiotonin and Renin $J.\ W.\ McCubbin$ and $Irvine\ H.\ Page$	300
On the Origin and Properties of a Cerebral Pressor Substance (CPS) $Robert\ D.\ Taylor\ and\ Irvine\ H.\ Page$	321
Action of Liver Extracts on Contractility of Isolated Mammalian Heart Muscle ${\it Jack\ Peter\ Green}$	330
MICROSCOPIC STUDIES ON BLOOD VESSELS OF RATS WITH EXPERIMENTAL PURPURA $Theodore\ H.\ Space$	333
Studies on Permeability. VIII. Role of Acetylcholine Metabolism in the Genesis of the Electrocardiogram  William C. Holland, Clara Elizabeth Dunn and Margaret E. Greig	339
Effects of Adenosine-5-Monophosphate on Serum and Aortal Lipids in the Chicken  Lawrence J. Milch, Robert F. Redmond, William W. Calhoun, Herman I. Chinn and the Cardiovascular Research Group	340
EVALUATION OF CRYSTALLOIDAL SOLUTIONS IN HEMORRHAGED DOGS  William M. Parkins, Joseph H. Perlmutt and Harry M. Vars	35
CELLULAR POTENTIALS OF INTACT MAMMALIAN HEARTS B. F. Hoffman and E. E. Suckling	35
Twitch Summation in the Genesis of Isometric Tetanus of Skeletal Muscle $A.\ S.\ Gilson,\ Jr.$	36
Cytochrome Oxidase Activity in Muscle Following Neurotomy Fred L. Humoller, Dorothy Hatch and A. R. McIntyre	37
Role of Potential Wave Spreading Along Myelinated Nerve Fiber in Excitation and Conduction $J.\ Hodler,\ R.\ Stämpfli\ and\ I.\ Tasaki$	37.
Observations on Serum Prothrombin Conversion Accelerator in Radiation-Induced Pancytopenia	
George J. Jacobs, Eugene P. Cronkite and Sidney G. White	39
EFFECT OF ALTITUDE-INDUCED POLYCYTHEMIA AND RETICULOCYTOSIS ON TOLER- ANCE OF RATS TO RADIATION  Willie W. Smith, Walter S. Cool, Falconer Smith and Paul D. Altland	39
Kinetics of Radiopotassium in the Circulation  W. Gordon Walker and Walter S. Wilde	40
X-Irradiation and Bacteremia: Studies on Roentgen Death in Mice, IV	
J. W. Osborne, H. S. Bryan, H. Quastler and H. E. Rhoades	41

Cholinesterase Activity, Weight, Water Content and Pathology of Small Intestine of Rats Subjected to X-radiation Robert A. Conard	418
Effect of Varying Degrees of Hyponia on Temperature Regulation Allan Hemingway and G. G. Nahas	426
CO $_2$ Tension Across the Placental Barrier and Acid-Base Relationship Between Fetus and Mother in the Rabbit $I.\ Maureen\ Young$	434
Effect of Cortisone, Corticotropin and Adrenal ectomy on Plasma Sulf- hydryl and Protein Levels Bernard Shacter and Cecil Entenman	442
Influence of Gonads on Growth of Islets of Langerhans  Esme H. Kerr, J. C. Stears, Inna MacDougall and R. E. Haist	448
Inhibitory Action of Hyperglycemia on Delivery of Glucose to the Blood Stream by Liver of the Normal Dog $G.\ L.$ Searle and $I.\ L.$ Chaikoff	456
Effects of Intravenous Infusion of Potassium on Liver Glycogen Richard A. Seibert, Russell A. Huggins and Ruth Saxton	461
Alkaline Phosphate and Amylase of Plasma After Hepatectomy Eunice V. Flock, Melvin A. Block, Jesse L. Bollman and Frank C. Mann	467
Turnover of Liver and Plasma Phospholipides of Phlorizinized Dogs $N.\ R.\ Diluzio$ and $D.\ B.\ Zilversmit$	472
No. 3 SEPTEMBER 1052	
Mechanisms of Desonycorticosterone Action. VIII. Effects of Nephrectomy D. M. Green, R. L. Craig, F. J. Saunders and F. M. Sturtevant	477
MECHANISMS OF DESOXYCORTICOSTERONE ACTION. IX. TEMPORAL RELATIONSHIPS OF POLYURIA, POLYDIPSIA, SODIUM EXCHANGE AND HYPERTENSION D. M. Green, F. J. Saunders, C. G. Van Arman, L. D. Calvin and F. M. Sturtevant	486
Comparative Value of Corticosterone, Hydrocortisone and Adrenal Cortex Extract Given by Continuous Intravenous Injection in Sustaining the Ability of Adrenalectomized Rat to Work  Dwight J. Ingle, James E. Nezamis and Erving H. Morley	498
Effect of Thyroxine on Succinate Oxidation by Rat Heart Homogenates  Chalmers L. Gemmill	502
Hypophysis as a Determinant in the Reaction of the Mammal to Oxygen at High Pressure  John W. Bean	508
Uterine Motility Responses to Mating N. L. VanDemark and R. L. Hays	518
Inhibition of Decidual Cell Formation in the Pseudopregnant Rat by Histamine Antagonists $M.\ C.\ Shelesnyak$	522
Renal Excretion of a Substance Closely Related to Thymus Hormone in Man $J.\ Comsa$	528
Endocrine Influences on Rate of Encretion of a Standard Salt Load $H.\ F.\ Martin\ and\ H.\ L.\ White$	532
PROTRACTED SHOCK IN THE CLOSED-CHEST DOG FOLLOWING CORONARY EMBOLIZATION WITH GRADED MICROSPHERES  Clarence M. Agress, Marvin J. Rosenberg, Howard I. Jacobs, Maxwell J. Binder,	
Abraham Schneiderman and William G. Clark	536
TOLERANCE OF THE DOG HEART TO CARBON DIOXIDE  E. B. Brown, Jr. and Fletcher Miller	550

Studies on the Nervous and Humoral Control of Coronary Circulation  Martin M. Winbury and D. M. Green	555
Production of Circulatory Failure by Electrolyte Depletion J. W. Remington, R. E. Remington and H. M. Caddell	564
Effects of Hypoxia on Pulmonary Circulation of the Dog Benjamin M. Lewis and Richard Gorlin	574
NEUROHEMODYNAMICS OF PULMONARY EDEMA, IV. EFFECT OF SYSTEMIC VASO- CONSTRICTION AND SUBSEQUENT VASODILATION ON FLOW AND PRESSURES IN SYSTEMIC AND PULMONARY VASCULAR BEDS	
Stanley J. Sarnoff and Erik Berglund Vasomotor Waves Possibly Resulting From CNS Ischemic Reflex Oscilia-	588
TION Arthur C. Guyton and James H. Satterfield	601
RATE OF GAS ABSORPTION DURING ATELECTASIS  W. Andrew Dale and Hermann Rahn	606
EFFECT OF TEMPERATURE ON THE TRANSFER OF SERUM PROTEINS INTO TISSUES INTURED BY TOURNIQUET AND BY SCALD	
Dan H. Moore and Douglas L. Worf	616
Fractional Distribution of Total Blood Flow to and Oxygen Consumption of the Liver as Influenced by Mild Hemorrhage	
Attie Yvonne Werner, Donald M. MacCanon and Steven M. Horvath	624
PLATELETS AND THEIR PLASMA COFACTOR ACTIVITY IN THE ACTIVATION OF PURI- FIED PROTHROMBIN  Shirley A. Johnson, Ward M. Smathers and Charles L. Schneider	631
Studies on a Proteolytic Enzyme System of the Blood. V. Activation of Profibrinolysin by Trypsin Jessica II. Lewis and John II. Ferguson	636
Effect of Chronic Di-Isopropyl Fluorophosphate Intoxication Upon Experimental Epilepsy in Macaca Mulatta  Joseph G. Chusid, Lenore M. Kopeloff and Nicholas Kopeloff	642
Aerobic and Anaerobic Reduction of Methemoglobin in Avian Erythro- cytes in Vitro Horgard H. Rostorfer	648
STIMULUS PARAMETERS FOR ELECTROSHOCK SEIZURES IN RATS  Lowell A. Woodbury and C. A. Swinyard	661
Acetylcholine Production in Passively Extended Wall of the Intestine – $Nobuyuki\ Chujyo$	668
Hidden Motor Cortex of the Cat José M. R. Delgado	673
A Composite Sensory Projection Area in the Cerebral Cortex of the Cat Walter A. Mickle and Harlow W. Ades	682
Central Inhibition: Reflexly, Reciprocally and Chemically Induced Robert Gesell and A. S. Dontas	690
AN ELECTRICAL STUDY OF MANIFESTATIONS OF PAIRED MOTOR HALF-CENTERS (EXCITATION, INHIBITION, PRECEDENCE OF STIMULATION, ADAPTATION AND REBOUND)  **Robert Gesell and A. S. Dontas**	702
Comparison of Central and Peripheral Summation of Nerve Impulses $David\ C.\ Peters\ and\ Robert\ Gesell$	717
DECREASED X-RAY SENSITIVITY OF MICE FOLLOWING THE ADMINISTRATION OF ETHANOL.  Leonard J. Cole and Marie E. Ellis	724

C. Bertrand Thompson

CONTENTS OF VOLUME 170

EFFECTS OF X-RADIATION ON ARGINASE



## Index to Volume 170

NOTE: Individual and types of drugs may be found under the heading, Drugs. Cross references are as follows: Cardiac, see Heart; Cerebral cortex, see Brain; Clotting, see Blood coagulation; Hepatic, see Liver; Hypoxia, see Anoxia; Plasma, see Blood; Pulmonary, see Lung; Renal, see Kidney.

BSORPTION

gas, 606

intestinal, water and chloride, of, 17

Acetate, inhibited tubular transport and, 31

Acetylcholine

hidden motor cortex and, 673 intestinal wall, in, 668

metabolism, 642

metabolism, potassium uptake and, 330 Acetyl phosphatase, distribution pattern of, 116 Acid-base relationship between fetus and mother,

ADAMS, S., 277

Adenosine-5-monophosphate, cholesterol and,

ADES, H. W., 682

Adrenal cortex

extract, 498 glucose levels and, 87

hypertension and, 57, 94

plasma sulfhydryl and, 442

Adrenal medullary hormones, 24

Aerobic reduction of methemoglobin, 648

cardiac muscle, of, 126

reproductive senescence and, 72

Agress, C. M., M. J. Rosenberg, H. I. Jacobs, M. J. BINDER, A. SCHNEIDERMAN AND W. G. CLARK. Protracted shock in closed-chest dog following coronary embolization with graded microspheres, 536

Albumin, exchange of, 1

Alkaline phosphate of plasma, 467

Altitude, polycythemia, induced, 396

ALTLAND, P. D., 396

Amylase, plasma, 467

Anaerobic reduction of methemoglobin, 648

Anemia, vitamin B6 and, 155, 160

Anesthesia

bleeding volume and, 143

Thiopental, 168

white cell count and, 196

Anoxia

pulmonary circulation and, 574 temperature regulation and, 426

Anslow, W. P., Jr., 255 Archdeacon, J. W., 201

Arginase, x-radiation and, 731

ASHBY, WINIFRED, R. F. GARZOLI AND E. M. SCHUSTER. Relative distribution patterns of three brain enzymes, carbonic anhydrase, choline esterase and acetyl phosphatase, 116

Atelectasis, gas absorption during, 606 Atherosclerosis, adenosine-5-monophosphate in,

346

Atrophy, muscular, 371 Atropine, intestinal absorption and, 17

Azide-sensitive potential difference across eyebulb, 217

BACTEREMIA, X-radiation and, 414

BARKER, S. B. AND H. M. KLITGAARD. Metabolism of tissues excised from thyroxine-injected rats, 81

BEAN, J. W. Hypophysis as a determinant in the reaction of the mammal to oxygen at

high pressure, 508 BERGLUND, E., 588

BERMAN, D. A., 301

BINDER, M. J., 536

BLACKBURN, D. L., 277

Bleeding volume, 285

BLICKENSTAFF, D. D. AND L. J. LEWIS. Effect of atropine on intestinal absorption of water and chloride, 17

Вьоск, М. А., 467

Blood

alkaline phosphate in plasma, 467

cerebral vasopressor substance in, 321 cholesterol levels, 346

circulation, kinetics of radiopotassium in,

401

coagulation, 147, 631 erythrocytes, avian, 648

erythrocytes and cardiac output measure-

ment, 277

fibrin clot, 147

glucose delivery to, 456

hematopoiesis and vitamin B6, 155

hemorrhage, 136, 143, 285, 351

hemorrhage and liver blood flow, 624

hemorrhage and shock, 179, 187

kidney hemodynamics, 61

leucocytes, 160

leucocyte count, 196

methemoglobin, 648
plasma cofactor activity, 631
plasma phospholipides, 472
plasma protein changes, 1
plasma substitutes, 173
platelets, 631
profibrinolysin, 636
proteolytic enzyme system of, 636
prothrombin conversion, 631
pulmonary hemodynamics, 588
serum prothrombin conversion, 390
vasoconstriction, 131
vessels, purpura and, 333
Blood flow

coronary circulation, 555 experimental concussion and, 294 oxygen consumption and, 624 pulmonary, 588

Blood pressure
adrenal cortex and, 57
carbon dioxide and, 550
experimental concussion and, 294
experimental purpura and, 333
nephrectomy and, 477
pulmonary vascular, 588
waves, 601

Blood sugar glucose as source of, 38 levels, adrenal cortex and, 87 Blood volume, 136, 285

Blood volume, 136, 285 anesthesia and, 143 electrolyte depletion and, 564 pulmonary, 588 BOLLMAN, J. L., 467

BOLLMAN, J. L. AND J. H. GRINDLAY. Measurement of renal gluconeogenesis, 38 BOOKER, W. M., A. H. MALONEY, J. R. TURE-

BOOKER, W. M., A. H. MALONEY, J. R. TURE-MAN AND CLAUDIA RATLIFF. Some metabolic factors influencing the course of Thiopental anesthesia in dogs, 168 Brain

cerebral cortex, 682 cerebral gyri, 673 cerebral sensori-method cortex, 642 electroshock seizures, 661 enzymes, 116 hidden motor cortex, 673 pressor substance, 321

Brandfonbrener, M., 61
Brown, E. B., Jr. and F. Miller. Tolerance of dog heart to carbon dioxide, 550

Brown, G. W., Marjorie L. Brown and H. M. Hines. Effects of experimental concussion on blood flow, arterial pressure and cardiac rate, 204

BROWN, MARJORIE L., 294 BRYAN, H. S., 414 Burn shock, 187

CADDELL, H. M., 564 CALROUN, W. W., 346 CALVIN, L. D., 486
CANTRELL, W. F., 277
Carbohydrate metabolism
adrenal cortex and, 87
potassium transfer and, 461
Carbon dioxide
tension across placental barrier, 434
tolerance of heart to, 550
Carbonic anhydrase, distribution pattern

Carbonic anhydrase, distribution pattern of, 116 Carbovascular Research Group, 346 Carotid sinus, 300

Catalase

arginase and x-radiation in presence of, 731 radiation and, 724

Cells, potentials of intact heart, 357 Central nervous system, blood pressure waves and, 601

Central summation of nerve impulses, 717 Cerebral pressor substance, 321 Chaikoff, I. L., 456 Chinn, H. L., 346

Chloride, absorption of, 17 Cholinesterase distribution pattern of, 116

radiation and, 418
Chujyo, N. Acetylcholine production in pas-

sively extended wall of intestine, 668 Chusid, J. G., Lenore M. Kopeloff and N. Kopeloff. Effect of chronic di-isopropyl fluorophosphate intoxication upon experimen-

tal epilepsy in Macaca mulatta, 642 Circulatory failure by electrolyte depletion, 564 CLAMPIT, J. M., 107

CLARK, W. G., 536

COHN, C., B. KATZ, BERNICE HUDDLESTUN, MURIEL KOLINSKY AND RACHMIEL LEVINE. Utilization of carbohydrate by extrahepatic tissues of adrenalectomized dog, 87 Cold, anoxia and, 426

COLE, L. J. AND MARIE E. ELLIS. Decreased x-ray sensitivity of mice following administration of ethanol. 724

Comsa, J. Renal excretaion of a substance closely related to thymus hormone in man, 528

CONARD, R. A. Cholinesterase activity, weight, water content and pathology of small intestine of rats subjected to x-radiation, 418

Concussion, experimental, 294

Contractility muscle, 330 wall of intestine, 668 Cool, W. S., 396

Cortex, hidden motor, 673 Cortisone, metabolic effects of, 77 Craig, R. L., 94, 477

CRONKITE, E. P., 390 Crystalloid solutions, shock and, 351 Cytochrome oxidase

activity of muscle, 371 thyroxine and, 502

DALE, W. A. AND H. RAHN. Rate of gas absorption during atelectasis, 606 Decidual cell formation, histamine and, 522

Delgado, J. M. R. Hidden motor cortex of cat, 673

DESPOPOULOS, A. AND E. H. KAUFMAN. Effect of desoxycorticosterone glucoside on renal tubular reabsorption of glucose in dogs, 11 Dextran, 173

reproductive senescence and, 72 urea excretion and, 45 vitamin B<sub>6</sub>, 155, 160

Di-isopropyl fluorophosphate, 642 DILUZIO, N. R. AND D. B. ZILVERSMIT. Turn-over of liver and plasma phospholipides of phlorizinized dogs, 472

Distal tubule, urine and, 239

Diuresis mercurial, 255

Diet

osmotic, 255 water, urine flow and, 230

DONTAS, A. S., 690, 702

atropine, 17 coronary blood flow and, 555 corticosterone, 498

corticotropin, 442 cortisone, 442

desoxycorticosterone acetate, 270, 486 desoxycorticosterone acetate, hypertension, and, oa

desoxycorticosterone acetate, nephrectomy and, 477

desoxycorticosterone acetate, pituitary and,

desoxycorticosterone acetate and salt load, 532 desoxycorticosterone glucoside, glucose re-

absorption and, 11 heart metabolism and, 301

histamine, 206

hydrocortisone, 498 Pitressin, 270

tetraethylammonium chloride, 300 Thiopental, 168

DUNN, CLARA E., 339 Duodenal mucosa, histamine and, 206 Dye, cardiac output measurement, 277

EATING, small intestine and, 201 Edema, pulmonary, 588

EINHORN, S. L., 136 Electrical stimulation, vasomotor effects of, 131 Electrical study of paired motor half-centers, 702 Electric excitation, myelinated nerve in, 375 Electrocardiogram

acetylcholine metabolism in, 330 Q-T interval, 121

Electrolytes

depletion, circulatory failure and, 504 kidney hemodynamics, 61 medullary hormones and, 24 metabolism, desoxycorticosterone glucoside

rates of exchange of, 401

Electron microscope, fibrin clot under, 147 Electroshock seizures, stimulus parameters for,

Electrotonic potentials, 690

ELLIS, MARIE E., 724 Embolization of heart, 536

Endocrine influence on salt load, 532

Energy, myocardium, of, 301 ENTENMAN, C., 442

Enzymes

arginase and x-radiation, 731 brain, 116

proteolytic, system, 636

Epilepsy, aluminum hydroxide and, 642

Ethanol, x-ray and, 724 EVANS, MARY K., 155, 160

EVERSOLE, W. J., F. A. GIERE AND M. H. ROCK: Effects of adrenal medullary hormones on renal excretion of water and electrolytes,

Eye-bulb, potential difference across, 217

 ${f F}_{
m AT}$ , liver phospholipides and, 472 FERGUSON, J. H., 636 Fertility, uterine motility and, 518

Fetus, acid-base relationship, 434 Fibrin

clot structure, 147

hemodynamic changes and, 588 FITTS, W. T., JR., 57

FLOCK, EUNICE V., M. A. BLOCK, J. L. BOLL-MAN AND F. C. MANN. Alkaline phosphate and amylase of plasma after hepatectomy, 467

FOMON, S. J., 230 Food intake, small intestine and, 201

FRIEDMAN, CONSTANCE L., 270

FRIEDMAN, S. M., CONSTANCE L. FRIEDMAN AND M. NAKASHIMA. Inhibition of cardiovascular-renal effects of DCA by Pitressin, 270

GARZOLI, R. F., 116 Gas absorption, 606

GELLER, H. M., 61

GEMMILL, C. L. Effect of thyroxine on succinate oxidation by rat heart homogenates, 502 GESELL, R., 717

GESELL, R. AND A. S. DONTAS.

An electrical study of manifestations of paired motor half-centers (excitation, inhibition, precedence of stimulation, adaptation and rebound), 702

Central inhibition; reflexly, reciprocally and chemically induced, 690

GIERE, F. A., 24

GILSON, A. S., JR. Twitch summation in genesis of isometric tetanus of skeletal muscle, 363 GIRLING, F. Vasomotor effects of electrical

stimulation, 131 Gluconeogenesis, kidney, 38

Glucose

blood sugar, in, 38 delivery rate to blood, 456 reabsorption, desoxycorticosterone glucoside and, 11

Glycogen

potassium infusion and liver, 461 potassium transfer in liver, 461

GOFF, L. G., 196

Gonads, islets of Langerhans and, 448

GORLIN, R., 574

GREEN, D. M., 555

GREEN, D. M., F. J. SAUNDERS, C. G. VAN ARMAN, L. D. CALVIN AND F. M. STURTE-VANT. Mechanisms of desoxycorticosterone action. IX: Temporal relationships of polyuria, polydipsia, sodium exchange and hypertension, 486

GREEN, D. M., F. J. SAUNDERS, N. WAHLGREN, F. J. McDonough and J. M. Clampit. Mechanisms of desoxycorticosterone action. VII. Influence of pituitary, 107

GREEN, D. M., F. J. SAUNDERS, N. WAHLGREN AND R. L. CRAIG. Self-sustaining post-DCA hypertensive cardiovascular disease, 94

GREEN, D. M., R. L. CRAIG, F. J. SAUNDERS AND F. M. STURTEVANT. Mechanisms of desoxycorticosterone action. VIII. Effects of nephrectomy, 477

GREEN, J. P. Action of liver extracts on contractility of isolated mammalian heart muscle, 330

GREIG, MARGARET E., 339

GRINDLAY, J. H., 38 GROSS, D. A single numerical correlation between quotient Q-T/T-Q and cardiac rate in healthy adults, 121

GUYTON, A. C. AND J. H. SATTERFIELD. Vasomotor waves possibly resulting from CNS ischemic reflex oscillation, 601

H<sub>AIST, R. E., 448</sub> Half-centers, paired motor, 702

HALLENBECK, G. A., 211

HALLENBECK, G. A. AND G. L. JORDAN, JR. Effect of histamine in beeswax-sesame oil mixture on canine external pancreatic secretion and on resistance of duodenal mucosa to trauma, 200

Натси, Доготну, 371

HAWKINS, W. W., B. LECHOW AND MARY K. Evans. Vitamin B<sub>6</sub> and hematopoiesis in rat, HAWKINS, W. W. AND MARY K. EVANS. White blood cells and lymphoid tissue in vitamin B6 insufficiency, 160

HAYS, R. L., 518

Heart

acetylcholine metabolism, 339 carbon dioxide, tolerance of, 550 cardiac output and anoxia, 574 cardiac output measurement, 277 cardiac rate, 121 cellular potentials, 357 desoxycorticosterone acetate hypertension, electrolyte depletion and failure of, 564

embolization of, 536 metabolism of, 301 muscle, 126

muscle contractility, 330 nervous and humoral influences on, 555 Pitressin and, 270

thyroxine and, 502

Heart rate, experimental concussion and, 204 Hematopoiesis, vitamin B6 and, 155

HEMINGWAY, A. AND G. G. NAHAS. Effect of varying degrees of hypoxia on temperature regulation, 426

HILL, R. G., E. C. ISON, W. W. JONES AND J. W. ARCHDEACON. Small intestine as factor in regulation of eating, 201

HINES, H. M., 294

Histamine, deciduoma and, 522

HODLER, J., R. STÄMPFLI AND I. TASAKI. Role of potential wave spreading along myelinated nerve fiber in excitation and conduction, 375

HOFFMAN, B. F. AND E. E. SUCKLING. Cellular potentials of intact mammalian hearts, 357 HOLLAND, W. C., CLARA E. DUNN AND MAR-GARET E. GREIG. Studies on permeability. VIII. Role of acetylcholine metabolism in genesis of electrocardiogram, 339

HORVATH, S. M., 624

HUDDLESTUN, BERNICE, 87

Huggins, R. A., 461

HUMOLLER, F. L., DOROTHY HATCH AND A. R. McIntyre. Cytochrome oxidase activity in muscle following neurotomy, 371

Humoral control of coronary circulation, 555 Hydrocortisone, metabolic effects of, 77 Hypercorticalism, 77

Hyperglycemia, inhibitory action of, 456

Hyperplasia, radiation and, 396

Hypertension

adrenal cortex and, 57

desoxycorticosterone acetate, 94, 270, 486 desoxycorticosterone acetate-induced, 107 nephrectomy and, 477

renin and, 300

Hypophysis, oxygen at high pressure and, 508 Hypotension, crystalloid solutions in, 351

NDEX to bleeding volume, 285

INGLE, D. J., J. E. NEZAMIS AND E. H. MORLEY. Comparative value of corticosterone, hydrocortisone and adrenal cortex extract given by continuous intravenous injection in sustaining ability of adrenalectomized rat to work, 408

INGLE, D. J. AND R. C. MEEKS. Comparison of some metabolic and morphologic effects of cortisone and hydrocortisone given by continuous injection to rats, 77

Insulin, Pentothal and, 168

Intestinal absorption of water and chloride, 17

acetylcholine in wall of, 668 radiation damage to, 414 small, eating and, 201 small, radiation and cholinesterase in, 418 Ischemic reflex, central nervous system, 601 Islets of Langerhans, growth of, 448 ISON, E. C., 201

JACOBS, G. J., E. P. CRONKITE AND S. G. WHITE. Observations on serum prothrombin conversion accelerator in radiation-induced pancytopenia, 390

JACOBS, H. I., 536 JEHL, JO'ANN, 126

JOHNSON, SHIRLEY A., W. M. SMATHERS AND C. L. Schneider. Platelets and their plasma cofactor activity in activation of purified prothrombin, 631

JONES, W. W., 201 JORDAN, G. L., JR., 206

JORDAN, G. L., JR. AND G. A. HALLENBECK. Effect of increased secretory pressure on canine pancreatic secretion, 211

K APLAN, S. A., 239

KATZ, B., 87

KAUFMAN, E. H., 11

KERR, E. H., J. C. STEARS, I. MACDOUGALL AND R. E. HAIST. Influence of gonads on growth of islets of Langerhans, 448

acetate and tubular transport, 31

desoxycorticosterone acetate hypertension, 01 desoxycorticosterone glucoside and, 11

gluconeogenesis, 38 hypertension and adrenalectomy, 57

Pitressin and, 270 thymus and, 528

tubular excretion of urea, 45

ureteral pressure and, 61 urine production, 239

KING, J. T., 72 KLITGAARD, H. M, 81 KOLINSKY, MURIEL, 87 KOPELOFF, LENORE M., 642 KOPELOFF, N., 642

LANGERHANS, islets of, 448

LAWSON, H. C., W. F. CANTRELL, J. E. SHAW, D. L. BLACKBURN AND S. ADAMS. Measurement of cardiac output in dog by simultaneous injection of dye and radioactive red cells, 277 LECHOW, B., 155

LEE, Y. C. P., 72

LEVINE, RACHMIEL, 87

LEWIS, B. M. AND R. GORLIN. Effects of hypoxia on pulmonary circulation of dog, 574 LEWIS, JESSICA H. AND J. H. FERGUSON. Studies on a proteolytic enzyme system of the blood. V. Activation of profibrinolysin by trypsin,

636 LEWIS, L. J., 17

LIPIDS, aortal, adenosine-5-monophosphate and,

Liver

amylase, 467 blood flow to and oxygen consumption of 024

carbohydrate metabolism, 87

glucose delivery by, 456 heart muscle contractility, 330

Pentothal and, 168

potassium infusion and, 461 turnover of, 472

anoxia and, circulation, 574 atelectatic, 606 neurohemodynamics of edema, 588

Lymphocytes, vitamin B6 and, 100

MacCanon, D. M., 624

MACDOUGALL, I., 448 MALONEY, A. H., 168

MANN, F. C., 467 MARTIN, H. F. AND H. L. WHITE. Endocrine influences on rate of excretion of a standard salt load, 532

MASUOKA, D. T., D. A. BERMAN AND P. R. SAUNDERS. Metabolism of heart in relation to drug action. VII. Energy sources for isolated electrically-driven rat ventricle strip, 301

Mating, uterine motility and, 518

MAYERSON, H. S., 1

McCubbin, J. W. and I. H. Page. Influence of carotid sinus and aortic buffer reflexes and tetraethylammonium chloride on vascular reactivity to angiotonin and renin, 300

McDonough, F. J., 107

MCINTYRE, A. R., 371

Medullary hormones, water excretion and, 24

MEEKS, R. C., 77

Mercurial diuresis, water diuresis and, 255

Mesoappendix, blood vessels in, 333 Metabolism

acetylcholine, electrocardiogram in, 339 cortisone and hydrocortisone, effects of, 77 heart, 301

Thiopental and, 168

thyroxine and tissue, 81 Methemoglobin, reduction of, 648

MICKLE, W. A. AND H. W. ADES. A composite sensory projection area in cerebral cortex of cat, 682

Microscope, electron, fibrin clot under, 147 Microspheres, coronary shock and, 536

MILCH, L. J., R. F. REDMOND, W. W. CALHOUN, H. I. CHINN AND THE CARDIOVASCULAR RESEARCH GROUP. Effects of adenosine-5monophosphate in serum and aortal lipids in the chicken, 346

MILLER, F., 550

MILLICAN, R. C., E. F. STOHLMAN AND R. W. MOWRY. A comparison of plasma substitutes (dextran, polyvinylpyrrolidone and oxypolygelatin) with saline therapy in treatment of experimental tourniquet and burn shock in mice, 173

MILLICAN, R. C., H. TABOR, E. F. STOHLMAN AND S. M. ROSENTHAL. Traumatic shock in mice. Acute hemodynamic effects of therapy,

187

MILLICAN, R. C., H. TABOR AND S. M. ROSEN-THAL. Traumatic shock in mice. Comparison of survival rates following therapy, 179

MOORE, D. H. AND D. L. WORF. Effect of temperature on transfer of serum proteins into tissues injured by tourniquet and by scald, 616

MORLEY, E. H., 498

MORRISON, P. R. AND C. L. SCUDDER. Fibrin clot structure during clotting as observed in unsupported films under electron microscope, 147

MOWRY, R. W., 173

Muscle

atrophy, 371 cardiac, 126 contractility and acetylcholine, 668 heart, contractility, 330 skeletal, 363

Myelin sheath, potential wave in, 375

NAHAS, G. G., 426 NAKASHIMA, M., 270 NEPHRECTOMY, desoxycorticosterone acetate and, 477

cytochrome oxidase activity in, 371 inhibition of neurons, 690 myelin sheath in fiber, 375

Nerve impulses central and peripheral summation of, 717 paired motor half-centers, 702 Nervous control of coronary circulation, 555 Neurotomy muscle atrophy following, 371

NEZAMIS, J. E., 498 NOELL, W. F. Azide-sensitive potential difference across eye-bulb, 217

Osborne, J. W., H. S. Bryan, H. Quastler and H. E. Rhoades. x-irradiation and bacteremia, 414 Oscillation, ischemic reflex, 601 Osmotic diuresis, water diuresis and, 255 Oxidation, succinate, 502

Oxygen consumption blood flow to liver and, of, 624

cold and, 426 Oxygen at high pressure, 498 Oxypolygelatin, 173

Page, I. H., 309, 321 Pancreas, insulin content of, 448 Pancreatic secretion histamine effect on, 206 pressure on, 211

Pancytopenia, radiation-induced, 390
Parameters, electrical stimulus, 661
Para-aminohippurate, tubular transport of, 31
Parkins, W. M., J. H. Perlautt and H. M.
Vars. Evaluation of crystalloidal solutions in

hemorrhaged dogs, 351 Peripheral summation of nerve impulses, 717 Perlmutt, J. H. 351

Permeability, acetylcholine metabolism, 339
PETERS, D. C. AND R. GESELL. Comparison of central and peripheral summation of nerve impulses, 717

impulses, 717
PH, carbon dioxide and 550
Phenolsulfonphthalein, tubular transport of, 31
Phlorizin, plasma phospholipides and, 472

Phosphate, alkaline, 467 Phospholipides, plasma, turnover of, 472 Pitressin, desoxycorticosterone acetate and, 270

Pituitary desoxycorticosterone acetate and, 107 oxygen at high pressure and, 508

Placental barrier, carbon dioxide tension across,

Plasma protein changes, 1 Polycythemia, radiation and, 396 Polydipsia, desoxycorticosterone acetate and,

Polyuria, desoxycorticosterone acetate and,

Polyvinylpyrrolidone, 173

Potassium infusion of, 461

radio-, kinetics of, 401

Potential difference, azide-sensitive, 217 Potentials, cellular, 357 Potential wave in myelin sheath, 375 Pregnancy, pseudo-, deciduoma and, 522

Pressor agent, cerebral pressor substance, 321 Pressure

high, oxygen at, 508 secretory, pancreatic secretion and, 211

Profibrinolysin, 636 Protein levels, adrenals and drugs and, 442 Proteins, serum, transfer of, 616

Prothrombin, serum conversion, 390 Purpura, experimental blood vessels in, 333

O-T interval, 121 Q-T/T-Q quotient, 121 QUASTLER, H., 414 QUIMBY, F. H. AND L. G. GOFF. Effect of source of blood sample on total white cell count of rat, 196

# RADIATION

arginase and, 731 bacteremia and, 414 cholinesterase in small intestine and, 418 ethanol and, 724 hyperplasia and, 396 pancytopenia, -induced, 390 Radioactivity, cardiac output measurement, 277

Radiopotassium, kinetics of, 401 RAHN, H., 606 RAPOPORT, S., 239 RATHBUN, R. C., 31 RATLIFF, CLAUDIA, 168

REDMOND, R. F., 346 Reflex

aortic buffer, 309

respiratory, central summation in, 717 REMINGTON, J. W. An index to the bleeding volume of the dog, 285

REMINGTON, J. W., R. E. REMINGTON AND H. M. CADDELL. Production of circulatory failure by electrolyte depletion, 564

REMINGTON, R. E., 564 Renin-angiotonin system, 309 Reproductive process, 518

ROSENTHAL S. M., 179, 187

Reproductive senescence, age and diet, influence on, 72

Respiration

anoxia and, 574 carbon dioxide and, 550 cardiac muscle, of, 126 central inhibition, 690 paired motor half-centers and, 702 Reticulocytosis, radiation and, 396 RHOADES, H. E., 414 Rock, M. H., 24 ROSENBERG, M. J., 536

ROSTORFER, H. H. Aerobic and anaerobic reduction of methemoglobin in avian erythrocytes in vitro, 648

SALINE infusions, plasma proteins and, 1 Saline therapy, burn shock and, 173 Salt excretion, medullary hormones and, 24 Salt load, endocrine influence on, 532

SARNOFF, S., J. AND E. BERGLUND. Neurohemodynamics of pulmonary edema. IV. Effect of systemic vasoconstriction and subsequent vasodilation on flow and pressures in systemic and pulmonary vascular beds, 588

SATTERFIELD, J. H., 601 SAUNDERS, F. J., 94, 107, 477, 486 SAUNDERS, P. R., 301

SAXTON, RUTH, 461

SCHMIDT-NIELSEN, B. Renal tubular excretion of urea in kangaroo rats, 45

SCHNEIDER, C. L., 631 SCHNEIDERMAN, A., 536 SCHUSTER, E. M., 116 SCUDDER, C. L., 147

SEARLE, G. L. AND I. L. CHAIKOFF. Inhibitory action of hyperglycemia on delivery of glucose to blood stream by liver of normal dog, 456

Secretory pressure, pancreatic secretion, 211
Seibert, R. A., R. A. Huggins and Ruth SAXTON. Effects of intravenous infusion of potassium on liver glycogen, 461

SELKURT, E. E., M. BRANDFONBRENER AND H. M. GELLER. Effects of ureteral pressure increase on renal hemodynamics and handling of electrolytes and water, 61

Senescence, reproductive, 72

Sensory pathways in cerebral cortex, 682 Serum proteins, transfer into tissues, 616

SHACTER, B. AND C. ENTENMAN. Effect of cortisone, corticotropin and adrenalectomy on plasma sulfhydryl and protein levels, 442 SHAW, J. E., 277

Shelesnyak, M. C. Inhibition of decidual cell formation in the pseudopregnant rat by histamine antagonists, 522

SHIDEMAN, F. E., R. C. RATHBUN AND F. STONE-MAN. Inhibition of renal tubular transport of p-aminohippurate (PAH) and phenolsulforphthalein (PSP) as affected by acetate, 31

Shock

burn, plasma substitutes in, 173 burn and temperature, 616 coronary, 536 crystalloid solutions in, 351 duodenal mucosa and, 206 electrolyte depletion and, 564 electro-, seizures, 661 hemorrhagic, 136

therapy in traumatic, 179, 187 tourniquet and temperature, 616 twitch summation, 363

SMATHERS, W. M., 631

SMITH, F., 396 SMITH, W. W., W. S. COOL, F. SMITH AND P. D. ALTLAND. Effect of altitude-induced polycythemia and reticulocytosis on tolerance of rats to radiation, 396 Sodium azide, potential difference across eye-

bulb, 217

Sodium exchange, desoxycorticosterone acetate and, 481

SPAET, T. H. Microscopic studies in blood vessels of rats with experimental purpura, 333 STÄMPFLI, R., 375

STEARS, J. C., 448

Steroids

cortisone, 77

desoxycorticosterone glucoside, 11 hydrocortisone, 77

STOHLMAN, E. F., 173, 187

Stomach

histamine and duodenum, 200 pancreatic secretion, 211

STONEMAN, F., 31 STURTEVANT, F. M., 477, 486

Substrates, ventricle strip and, 301

Succinate oxidation, thyroxine and, 502 SUCKLING, E. E., 357

Sugar, adrenal cortex and, 87 Sulfhydryl, plasma, levels, 442 Survival rates, shock and, 170

SWINYARD, C. A., 661

ABOR, H., 179, 187 TASAKI, I., 375

TAYLOR, R. D. AND I. H. PAGE. On the origin and properties of a cerebral pressor substance (CPS), 321

Temperature

burn shock and, 616

regulation, anoxia and, 426

Tension gradient, carbon dioxide transfer and,

Tetanus, isometric, 363

Therapy, shock and, 179, 187

Thompson, C. B. Effects of x-radiation on arginase, 731

THOMPSON, H. J., JR., 136

Thromboplastin, 631

Thymus, antithyroid function of urine and, 528 Thyroid

anti-, of urine, 528

tissue metabolism and, Sr

Thyroxine

succinate oxidation and, 502 tissue metabolism and, 81

Tissue metabolism, thyroxine and, 81

Tissues, transfer of serum proteins into, 616 Trypsin inhibition, 636 Tubular excretion of urea, 45 Tubular transport desoxycorticosterone glucoside and, 11 inhibited, 31

TUREMAN, J. R., 168

Twitch summation, 363

UREA, tubular excretion of, 45

antithyroid function of, 528 distal tubule in production of, 239 formation, 61

water diuresis and, 255 Uterine motility, 518

Uterine stimulation, histamine and, 522

VAN ARMAN, C. G., 486

VANDEMARK, N. L. AND R. L. HAYS. Uterine motility responses to mating, 518

VARS, H. M., 351

Vasoconstriction, 131

Vasomotor effects of electrical stimulation, 131

Ventricle strip, substrates and, 301

VISSCHER, M. B., J. T. KING AND Y. C. P. LEE. Further studies on influence of age and diet upon reproductive senescence in strain A female mice, 72

Vitamin Ba

hematopoiesis and, 155 insufficiency, 160

Wahlgren, N., 94, 107 WALCOTT, W. W. 136, 143

WALKER, W. G. AND W. S. WILDE. Kinetics of radiopotassium in the circulation, 401

WANG, C. I., S. L. EINHORN H. J. THOMPSON, JR. AND W. W. WALCOTT. Bleeding volume of

unanesthetized dog, 136
WANG, C. I. AND W. W. WALCOTT. Effects of anesthesia on bleeding volume in dog, 143

WASSERMAN, K. AND H. S. MAYERSON, Mechanism of plasma protein changes following saline infusions, t

Water

absorption of, 17 kidney hemodynamics and, 61 medullary hormones and, 24

Water diuresis

osmotic diuresis and, 255 urine flow and, 230 Waves, vasomotor, 601

WERNER, A. Y., D. M. MACCANON AND S. M. HORVATH. Fractional distribution of total blood flow to oxygen consumption of the liver as influenced by mild hemorrhage, 6:4

WESSON, L. G., JR. AND W. P. ANSLOW, JR. Effect of osmotic and mercurial diuresis on simultaneous water diuresis, 255

West, C. D., S. A. Kaplan, S. J. Fomon and S. Rapoport. Urine flow and solute excretion during osmotic diuresis in hydrated dogs: Role of distal tubule in production of hypotonic urine, 239

WHISNANT, C., 57

WHITE, H. L., 532

WHITE, S. G., 390

WILDE, W. S., 401

WILLIAMS, W., C. WHISNANT AND W. T. FITTS, JR. Effect of adrenalectomy on experimental renal hypertension in dog, 57

WINBURY, M. M. AND D. M. GREEN. Studies on nervous and humoral control of coronary circulation, 555

Wollenberger, A. and Jo'Ann Jehl. Influence of age on rate of respiration of sliced cardiac muscle, 126 WOODBURY, L. A. AND C. A. SWINYARD. Stimulus parameters for electroshock seizures in rats, 661

WORF, D. L., 616

Work output, corticosterone and, 498

X-RAY

arginase and, 731 bacteremia and, 414 cholinesterase in small intestine and, 418 ethanol and, 724

Young, I. M. CO<sub>2</sub> tension across placental barrier and acid-base relationship between fetus and mother in rabbit, 434

ZILVERSMIT, D. B., 472

# THE AMERICAN JOURNAL OF PHYSIOLOGY

VOLUME 171

October-December 1952

#### BOARD OF PUBLICATION TRUSTEES

W. O. FENN, Chairman

W. F. HAMILTON

R. F. PITTS

#### EDITORIAL BOARD

E. F. Adolph A. C. Burton J. H. Comroe, Jr. R. G. Daggs H. J. Deuel, Jr. D. B. Dill H. E. Essex L. B. Flexner A. P. Gagge
C. L. Gemmill
Alfred Gilman
Ashton Graybiel
Frances Hellebrandt
D. J. Ingle
L. N. Katz
E. M. Landis

DAVID RAPPORT
T. C. RUCH
ERNST SIMONSON
H. B. STEINBACH
A. H. STEINHAUS
J. E. THOMAS
L. M. TOCANTINS

D. P. C. LLOYD

MILTON O. LEE, Managing Editor
SARA F. LESLIE, Secretary of Publications

THE AMERICAN PHYSIOLOGICAL SOCIETY Washington, D. C.

# COPYRIGHT 1952, BY THE AMERICAN PHYSIOLOGICAL SOCIETY, INC.

PRINTED IN THE UNITED STATES OF AMERICA BY WAVERLY PRESS, INC., BALTIMORE, MARYLAND

# Contents of Volume 171

## No. 1, OCTOBER 1952

Evidence That Glycolysis Contributes to Gastric Acid Secretion $Horace\ W.\ Davenport\ and\ Virginiu\ J.\ Chavr\'e$	I
Interrelation Between the Cephalic and Gastric Phases of Gastric Secre-	
Lester R. Dragstedt, Harry A. Oberhelman, Jr., Edward R. Woodward and Curtis A. Smith	7
Weight Changes and Water Consumption of Rats Exposed to Whole-Body X-Irradiation $L. F. Nims \ and \ E. Sutton$	17
Immediate Effect of Small Dosages of Pentobarbital Sodium Upon the Food Intake of the Rat Paul S. Siegel and Norman R. Ellis	22
Effect of Chronic Caloric Insufficiency on the Growth of the Islets of Langerhans $M.\ A.\ Ashworth,\ N.\ C.\ Kerbel\ and\ R.\ E.\ Haist$	25
Renal Glucogenesis in the Eviscerated Monkey ( $Macaca~Mulatta$ ) Roger~M.~Reinecke	20
Secretion of the Hyperglycemic-Glycogenolytic Factor in Normal Dogs Piero P. Fod, Leonida Santamaria, Harriet R. Weinstein, Sheldon Berger and Jay A. Smith	32
Metabolic Effects of Anesthesia. VI. Mechanism of Metabolic Acidosis and Hyperglycemia During Ether Anesthesia in the Dog William R. Brewster, Jr., John P. Bunker and Henry K. Beecher	37
Acetoacetate and Esterase Activity in Normal Rabbit Bone Marrow in $Vitro$ $John\ D.\ Evans$	48
BIOSYNTHESIS OF CHOLESTEROL. FACTORS REGULATING BIOSYNTHESIS OF CHOLESTEROL-LIKE SUBSTANCES IN ISOLATED WHOLE LIVERS  N. T. Werthessen and E. Schwenk	55
Mechanisms of Bile Formation Donald L. Cook, Coleta A. Lawler, Lyle D. Calvin and D. M. Green	62
Effect of Epinephrine on Male and Female Albino Rats  Talib M. Astarabadi and Hiram E. Essex	75
FURTHER OBSERVATIONS OF CERTAIN RESPONSES OF TOLERANT AND CONTROL ANI- MALS TO MASSIVE DOSES OF EPINEPHRINE Hiram E. Essex	78
Fractionation of the Biological Activities of Pitressin Mary E. Dumm, Bertram Laken, Stephen H. Leslie and Elaine P. Ralli	87
Reversal of Effects of Stress in Adrenalectomized Animals by Autonomic Blocking Agents. Use of Atropine, Banthine and Dibenamine M. S. Goldstein, E. R. Ramey, I. Fritz and R. Levine	92
METABOLIC EFFECT OF RED BLOOD CELLS ON ESTRONE  Fritz Bischoff, Robert E. Katherman, Vittorio Favati and Charles L. Gray	100

Effect of Hypothalamic Extract on Leucocytes of Infant Rats  Stanley Hellerstein, Dorsey E. Holkamp, Mary E. Hickey, R. M. Hill  and A. R. Buchanan	106
Effect of Renal and Parathyroid Function on Disappearance of Intravenously Injected Calcium Chloride James R. Hines and Smith Freeman	114
VESTIBULAR CONNECTIONS OF THE BRAIN STEM B. E. Gernandt and C. A. Thulin	121
Absence of Electrical Responses of Brain Slices on in $Vitro$ Stimulation $H.$ $McIlwain$ and $S.$ $Ochs$	128
Electrical Stimulation of Metabolism of Homogenates and Particulates $L.\ G.\ Abood,\ R.\ W.\ Gerard\ and\ S.\ Ochs$	134
Modes of Conduction in Myelinated Nerve $F, J. Wolfgram and A, van Harreveld$	1.40
Hemodynamics and Sodium Excretion of Denervated Kidney in Anesthetized and Unanesthetized Dog Robert M. Berne	148
PRIMARY EFFECTS OF ACUTE OLIGOCYTHEMIA ON RENAL FUNCTION Leonard Share	150
Comparison of Inulin and Creatinine Clearance in the Normal Dog Thomas J. Kennedy, Jr., James G. Hillon and Robert W. Berliner	164
Effect of Chronic Denervation on Response of Renal Vessels to Epineph- Rine A. Surtshin and Josef Hoeltzenbein	160
Combined Effects of Calcium and Potassium on Contractility and Excita- bility of the Mammalian Myocardium Jack Peter Green, N. J. Giarman and W. T. Salter	174
Suprasegmental Integration of Cardiac Innervation  Hebbel E. Hoff, Carlyle G. Breckenridge and William A. Spencer	178
ELECTROCARDIOGRAMS OF SMALL MAMMALS Elna A. Lombard	180
Dynamics of Venous Collapse in Superior Vena Cava System  Gerhard A. Brecher, George Mixter, Jr., and Leonard Share	104
CRITICAL CLOSING PRESSURE AND VENOUS PRESSURE F. Girling	204
Chylomicron Dissolution. Dosage and Site of Action of Heparin  Roy L. Swank and S. W. Levy	208
Plasma, Lymph and Urine Studies After Dextran Infusions  Karlman Wasserman and H. S. Mayerson	218
Red Cell Volume, Water Content and Oxygen Capacity of Blood Expelled From Spleen of the Dog by Epinephrine Kenneth E. Penrod	233
Pressure-Volume Characteristics and Stress Relaxation in the Pulmonary Vascular Bed of the Dog Stanley J. Sarnoff and Erik Berglund	238
Effect of Hypoxia and Anemic Anoxia on Uterus  Edward J. Van Liere, George B. McCarty and Joseph G. Matthews	245
Effect of Unilateral Nitrogen Breathing Upon Pulmonary Blood Flow Richard M. Peters and Albert Roos	250

## No. 2. NOVEMBER 1952

Phosphorus Content of Various Tissues of Chick Embryo

J. Szepsenwol and M. H. Partridge 25:

Inhibition of Active Sodium Transport in the Isolated Frog Skin Frederick A. Fuhrman	266
EXCHANGE OF WATER BETWEEN BLOOD AND TISSUES: CHARACTERISTICS OF DEUTERIUM OXIDE EQUILIBRATION IN BODY WATER  1. S. Edelman	270
Enterohepatic Circulation of Carbon 4 of Cholesterol.  M. D. Siperstein, H. H. Hernandez and I. L. Chaikoff	207
FACTORS INFLUENCING CHOLESTEROL ABSORPTION K. S. Kim and A. C. Ivy	302
Nitrogen Metabolism Following Whole Body X-Radiation  Gordon E. Gustafson and Simon Koletsky	319
Inhibition of Gastric Secretion of Acid in Dogs by Carbonic Anhydrase Inhibitor, 2-Acetylamino-1,3,4-Thiadiazole-5-Sulfonamide Henry D. Janowitz, Henry Colcher and Franklin Hollander	325
Studies on Hypothermia by Means of a Pump-Oxygenator Frank Gollan, Peter Blos and Howard Schuman	331
Hypothermia and Increased Survival Rate of Infant Mice Irradiated With X-Rays $ John \ B. \ Storer \ and \ Louis \ H. \ Hempelmann $	341
Survival of Irradiated Rats During Prolonged Exposure to Environmental Cold $D.\ J.\ Kimeldorf\ and\ B.\ D.\ Newsom$	349
Effects of Cortisone on Striated Muscle Contraction $E.\ C.\ Del\ Pozo,\ J.\ Negrete\ M.,\ J.\ Ibarra\ and\ M.\ Fernández\ L.$	354
Plasticity of Contractile Elements of Muscle as Studied in Extracted Muscle Fibers $Emil\ Bozler$	359
Concerning Contraction of Heart Muscle Jane Sands Robb	365
Substance U—A Depressor and Smooth-Muscle Stimulating Principle Present in Urine $$W.\ T.\ Beraldo$	371
EFFECT OF CONTINUOUS INTRAVENOUS ADMINISTRATION OF CORTICOTROPIN UPON THE WORK OUTPUT OF HYPOPHYSECTOMIZED RATS  **Dwight J. Ingle, James E. Nezamis and Erving H. Morley**	378
PREVENTION OF CORTISONE OVERDOSAGE EFFECTS WITH THE SOMATOTROPHIC HOR- MONE (STH)  Hans Selve	381
Experimental Production of Leukopenia in Rats by Thyroid Feeding J. G. Palmer, G. E. Cartwright and M. M. Wintrobe	385
Ultracentrifuge Lipoprotein Pattern of Serum of Normal, Hypertensive and Hypothyroid Animals	
Lena A. Lewis, Arda Alden Green and Irvine H. Page	301
Hyperglycemic-Glycogenolytic Factor in Diabetic Man and Alloxan-Diabetic Animals $M.\ Osman\ Saka$	401
Influence of Thyroid Hormone on Respiration of Cardiac Tissue $William\ C.\ Ullrick\ and\ William\ V.\ Whitehorn$	407
Adrenal, NaCl and Experimental Hypertension H. G. Danford and R. C. Herrin	412
Relationships Between Bulbar Réspiratory, Vasomotor and Somatic Facilitatory and Inhibitory Areas $L.\ M.\ N.\ Bach$	417
Response Evoked in Waking Cat by Electrical Stimulation of Motor Cortex $Jose\ M.\ R.\ Delgado$	436
Afferent Innervation of Blood Vessels in the Body Wall A. Van Harreveld and Dan L. Lindsley	447

507

515

554

INFLUENCE OF HYPOPHYSIS ON PULMONARY INJURY INDUCED BY EXPOSURE TO OXY-GEN AT HIGH PRESSURE AND BY PNEUMOCOCCUS John W. Bean and Paul C. Johnson 451 EFFECT OF DECREASED ATMOSPHERIC PRESSURE ON BLOOD VOLUME OF RATS Gordon R. Fryers 459 MEAN RED CELL LIFE OF RATS EXPOSED TO REDUCED BAROMETRIC PRESSURE G. L. Fryers and N. I. Berlin 465 MEASUREMENT OF LIVER BLOOD FLOW IN UNANESTHETIZED DOG USING THE BROM-SULFALEIN DYE METHOD Elmer B. Pratt, Francis D. Burdick and Joseph H. Holmes 471 OXYGEN CARRYING CAPACITY OF THE BLOOD OF DORMANT GROUND SQUIRRELS Arthur Svihla and Howard C. Bowman EFFECT OF DIBENAMINE ON RENAL BLOOD FLOW IN HEMORRHAGIC SHOCK Martin Brandfonbrener and Herman M. Geller 182 VALIDITY OF VALUES FOR GLOMERULAR FILTRATION RATE AND EXTRACELLULAR FLUID OBTAINED FROM PLASMA CONCENTRATION-TIME DECAY CURVES AFTER SINGLE INJECTIONS OF MANNITOL IN THE DOG Leo A. Sapirstein, Marcia R. Herrold, Mary Janakis and Eric Ogden 487 Properties of Heparin-Produced Lipemia Clearing Factor John J. Spitzer 102 RENAL FUNCTION IN THE DOG DURING INCREASED BLOOD VISCOSITY PRODUCED BY SIMULATED ALTITUDE EXPOSURE Louise H. Marshall, C. H. Hanna and H. Specht 400 EFFECT OF DIFFUSION RESPIRATION AND OF INHALATION OF HIGH CONCENTRATIONS OF CO2, ON PLASMA VOLUME, THIOCYANATE SPACE, BLOOD CELLS AND O2 CAPACITY Robert L. Arends, Chalmers J. Rayburn, William B. Draper and Richard V. Whitehead

#### No. 3. DECEMBER 1952

EFFECT OF ATROPINE, TETRAETHYLAMMONIUM, BANTHINE AND BENTYL ON MOTIL-ITY OF SMALL INTESTINE David W. Northup, J. Clifford Stickney and Edward J. Van Liere 513 EFFECT OF EPINEPHRINE ON MONOPHASIC ACTION POTENTIAL OF AURICULAR Leon Churney 516 MUSCLE John W. Bean INTESTINE IN REFLEX CHEMICAL CONTROL OF BREATHING CONSTRICTION OF ISOLATED ARTERIES AND THEIR VASA VASORUM PRODUCED BY LOW TEMPERATURES Durwood J. Smith 528 SIGNIFICANCE OF ELEVATED PORTAL VEIN PRESSURE IN ETIOLOGY OF HEMORRHAGIC Mary E. Zanetti 538 ACTION OF SALICYLATES AND RELATED DRUGS ON INFLAMMATION

CALORIC TECHNIQUE FOR MEASURING BLOOD FLOW IN THE FELINE BLADDER

Georges Ungar, Evelyn Damgaard and Fred P. Hummel

Carl M. Barlow and Walter S. Root

October December 1952 CONTENTS OF VOLUME 171	VII
Effect of Acute Reduction in Cardiac Output on the Denervated Kidney Robert $M.$ Berne and Malthew $N.$ Levy	558
Response of Normal and Denervated Kidney to L'Epinephrine and L'Nor- Epinephrine Robert M. Berne, Walter K. Hoffman, Jr., Abraham Kagan and Matthew N. Levy	564
URINARY CONCENTRATING MECHANISM IN THE DOG	
Lot B. Page and Gabrielle H. Reem	572
RATE OF FORMATION OF GLOMERULAR FLUID (GFR) Francis P. Chinard.	578
Sodium, Potassium and Chloride Retention Produced by Growth Hormone in Absence of Adrenals  Jerome D. Stein, Jr., Leslie L. Bennett, Adrienne A. Batts and Choh Hao Li	587
Relation of Anaphylactic Reaction to Neurogenic Factors  George Mikulicich and Y. T. Oester	502
Suppression of Glycosuria During Administration of Large Doses of Aspirin to Force-Fed Partially Depancreatectomized Rats  Dwight J. Ingle and Robert C. Meeks	600
Changes in Alkaline Phosphatase Activity of Regenerating Rat Liver Otto Rosenthal, James C. Fahl and Harry M. Vars	604
Limiting Effect of Adrenaline on Output of Adrenal Medulla $Ellen\ Eva\ King\ and\ Amedeo\ S.\ Marrazzi$	612
$In\ Vitro\ {\tt Oxygen}\ {\tt Consumption}\ {\tt of}\ {\tt Tissues}\ {\tt From}\ {\tt Normal}\ {\tt and}\ {\tt Adrenalectomized}\ {\tt Rats}\ John\ R.\ Bergen,\ Charlotte\ A.\ Hunt\ and\ Hudson\ Hoagland$	624
Effect of Intravenous Glucose on Tissue Water and Ionic Content, and Moderation of Potassium Plethora With Epinephrine and Insulin Pretreatment $Abraham\ Dury$	630
EFFECT OF INSULIN AND EPINEPHRINE ON EOSINOPHIL AND BLOOD GLUCOSE LEVELS IN SHEEP; LACK OF DIURNAL RHYTHM  M. X. Zarrow, M. E. Denison, B. Rosenberg, D. E. Mann, Jr. and C. M. Neher	636
RATES OF TRANSCAPILLARY MOVEMENT OF CALCIUM AND SODIUM AND OF CALCIUM EXCHANGE BY THE SKELETON	
W. D. Armstrong, John A. Johnson, Leon Singer, R. I. Lienke and M. L. Premer Factors Influencing the Plasma Copper Level of the Albino Rat C. J. Gubler, M. E. Lahey, G. E. Cartwright and M. M. Wintrobe	652
Volume of Distribution of Radioactive Chloride in Dogs; Comparisons With Sodium, Bromide and Inulin Space J. L. Gamble, Jr. and J. S. Robertson	659
Effect of X-Irradiation on Connective Tissue Ground Substance in Mice Robert $H.\ Edgerley$	668
Placental Transfer and Deposition of Labeled Calcium in Developing Bovine Fetus M. P. Plumlee, Sam L. Hansard, C. L. Comar and W. M. Beeson	678
KINETICS CONCERNED WITH DISTRIBUTION OF ISOTOPIC WATER IN ISOLATED PER- FUSED DOG HEART AND SKELETAL MUSCLE John J. Johnson, H. Mead Cavert and Nathan Lifson	687

American Physiological Society Proceedings, Fall Meeting 1952



## Index to Volume 171

NOTE: Individual and types of drugs may be found under the heading, Drugs. Cross references are as follows: Adrenaline, see Epinephrine; Body weight, see Weight; Cardiac, see Peart; Cerebral cortex, see Brain; Exercise and physical fitness, see Work output; Hepatic, see Liver; Hypothermia, see Cold; Hypoxia, see Anoxia; Plasma, see Blood; Pulmonary, see Lung; Renal, see

Abood, L. G., R. W. GERARD AND S. OCHS Electrical stimulation of metabolism of homogenates and particulates, 134 Acetate conversion to cholesterol, 55 Acetoacetate in bone marrow, 48 Acid

gastric secretion of, 325 secretion and glycolysis, 1 Acidosis, anesthesia and, 37 Adenosinetriphosphate, muscle contraction and, 257, 359

Adrenal cortex

growth hormone and, 587 hypertension and, 412 oxygen consumption and, 624 stress and, o2

Adrenal medulla, splanchnic nerves of, 612 Afferent innervation of blood vessels, 447 Alkaline phosphatase activity of liver, 604 Alloxan, insulin and, 401 Altitude

blood volume and, 459 kidney and, 499 red cell life and, 465

Alumina gel, antidiuretic activity of, 87 Anaphylaxis, autonomic nervous system and, 502

Anemic anoxia, uterus and, 245

kidney, denervated, and, 148 metabolic effects of, 37

Anoxia

cold and, 331 kidney function during blood viscosity, 499 red cell life and, 465

uterus, effect of, 245

Antigens, changes induced by, 592 ARENDS, R. L., C. J. RAYBURN, W. B. DRAPER AND R. W. WHITEHEAD. Effect of diffusion respiration and of inhalation of high concentrations of CO2 on plasma volume, thiocyanate space, blood cells and O2 capacity, 507

Armstrong, W. D., J. A. Johnson, L. Singer, R. I. Lienke and M. L. Premer. Rates of transcapillary movement of calcium and sodium and of calcium exchange by skeleton,

ASHWORTH, M. A., N. C. KERBEL AND R. E. HAIST. Effect of chronic caloric insufficiency on growth of islets of Langerhans, 25

ASTARABADI, T. M. AND H. E. ESSEX. Effect of epinephrine on male and female albino rats,

Atmospheric pressure, blood volume and, 459 Autonomic blocking agents, stress and, 92 Autonomic nervous system, epinephrine and,

BACH, L. M. N. Relationships between bulbar respiratory, vasomotor and somatic facilitatory and inhibitory areas, 417

BARLOW, C. M. AND W. S. ROOT. Caloric technique for measuring blood flow in feline bladder, 554

BATTS, ADRIENNE A., 587

BEAN, J. W.

Influence of hypophysis on pulmonary injury induced by exposure to oxygen at high pressure and by pneumococcus, 451

Intestine in reflex chemical control of breathing, 522

BEECHER, H. K., 37

BEESON, W: M., 678

BERALDO, W. T. Substance U—a depressor and smooth-muscle stimulating principle present in urine, 371

BERGEN, J. R., CHARLOTTE A. HUNT AND H. HOAGLAND. In vitro oxygen consumption from tissues of normal and adrenalectomized rats,

BERGER, S., 32

BERGLUND, E., 238

BERLIN, N. I., 465

BERLINER, R. W., 164

BERNE, R. M. Hemodynamics and sodium excretion of denervated kidney in anesthetized and unanesthetized dog, 148

BERNE, R. M., W. K. HOFFMAN, JR., A. KAGAN AND M. N. LEVY. Response of normal and denervated kidney to l'epinephrine and l'nor-epinephrine, 564

BERNE, R. M. AND M. N. LEVY. Effect of acute reduction in cardiac output on denervated kidney, 558

Rile

carbon 4 cholesterol, 297 cholesterol absorption and, 302 formation, 62

Biosynthesis of cholesterol, 55

BISCHOFF, F., R. E. KATHERMAN, V. FAVATI AND C. L. GRAY. Metabolic effect of red blood cells on estrone, 100

Bladder, blood flow in, 554

Blood

arteries, constriction of isolated, 528 bile transport from, 62 calcium removal, 114 chylomicra in, 208 erythrocytes, 100 erythrocytes and kidney, 150 erythrocyte volume, 233 estrone and, 100 glucose levels and epinephrine, 636 hemoglobin and altitude, 459 hemoglobin content of splenic, 233 hemorrhage, 554 hemorrhagic shock, 482 hypertension and, 412 kidney and viscosity, 499 leucocytes, 106 leukopenia, 385 lipemia clearing factor, 402 lipoprotein pattern of serum, 391 oxygen carrying capacity of, 479 plasma concentration-time decay curve, 487

plasma volume, 507 pooling of, 538 pressure-flow characteristics, 204 pressure-volume in vascular bed, 238 red cell life, 465 superior cava system, 194 volume expander, 218

plasma copper level, 652

plasma and dextran, 218

plasma, urine ratio, 572

plasma and creatinine clearance, 164

water exchange between, 279

Dibenamine and renal, 482 kidney, in, 148, 558 kidney, denervated, and, 169 liver, 471 measurement of, in bladder, 554 nitrogen breathing and, 250

tissue water and, 687 Blood pressure epinephrine and, 78

hypertension and, 412 venous, 204

Blood sugar, 29

ether anesthesia and, 37 hyperglycemic-glycogenolytic factor and, 32

Blood vessels

body wall, in, 447 cold and, 528

Blood volume

atmospheric pressure and, 459 kidney and, 159 shock and, 538

BLOS, P., 331

Body wall, blood vessels in, 447 Bone marrow, acetoacetate in, 48 BOWMAN, H. C., 479

BOZLER, E. Plasticity of contractile elements of muscle as studied in extracted muscle fibers, 359

Brain

cardiac innervation and, 178 motor functions of, 436 oxygen consumption of, 624 particulate metabolism, 134 reticular formation of stem, 417 stem, vestibular connections of, 121

stimulation of, slices, 128
Brandfonbrener, M. and H. M. Geller. Effect of Dibenamine on renal blood flow in

hemorrhagic shock, 482

BRECHER, G. A., G. MIXTER, JR. AND L. SHARE. Dynamics of venous collapse in superior vena cava system, 194

BRECKENRIDGE, C. G., 178

Brewster, W. R., Jr., J. P. Bunker and H. K. BEECHER. Metabolic effects of anesthesia. VI. Mechanism of metabolic acidosis and hyperglycemia during ether anesthesia in the dog, 37

Bromide, chloride space and volume of distribution of, 650

Bromsulfalein dye method for measuring liver blood flow, 471 BUCHANAN, A. R., 106

Bulbar reticular formation, 417

BUNKER, J. P., 37

BURDICK, F. C., 471

alcium

cardiac contractility and excitability and, placental transfer and radio-, 678

transcapillary movement of, 641 Calcium chloride, removal of, 114

Caloric technique for measuring blood flow, 554 CALVIN, LYLE D., 62

Carbon 4, cholesterol, 297

Carbon dioxide, diffusion respiration and, 507

Carbonic anhydrase, gastric secretion by, 325 CARTWRIGHT, G. E., 385, 652

CAVERT, H. M., 687

Central nervous system, heart and, 178 Cephalic phase of gastric secretion, 7

CHAIKOFF, I. L., 297 CHAVRÉ, VIRGINIA J., 1

Chemoceptors, intestine in control of breathing, 522

CHINARD, F. P. Derivation of an expression for the rate of formation of glomerular fluid (GFR). Applicability of certain physical and physico-chemical concepts, 578

Chloride, growth hormone and, 587

Chlorine space, 659

Cholesterol

absorption, 302 biosynthesis of, 55 carbon 4, 297

CHURNEY, L. Effect of epinephrine on monophasic action potential of auricular muscle,

Chylomicron dissolution, 208

COLCHER, H., 325

Cold

constriction of arteries and, 528 pump-oxygenator and, 331 radiation and, 349 x-rays and, 341

COMAR, C. L., 678

Contractility

heart muscle, 365 muscle, 354, 359

COOK, D. L., C. A. LAWLER, LYLE D. CALVIN AND D. M. GREEN. Mechanisms of bile formation, 62

Copper metabolism, 652

Cortical stimulation during conscious state, 436 Creatinine clearance, inulin and, 164

Danford, H. G. and R. C. Herrin. Adrenal, NaCl and experimental hypertension. 412 Damgaard, E., 545

DAVENPORT, H. W. AND VIRGINIA J. CHAVRÉ. Evidence that glycolysis contributes to gas-

tric acid secretion, 1

Delgado, J. M. R. Responses evoked in waking cat by electrical stimulation of motor cortex, 436

DEL POZO, E. C., J. NEGRETE M., J. IBARRA AND M. FERNÁNDEZ L. Effects of cortisone on striated muscle contraction, 354

DENISON, M. E., 636

Deuterium oxide, body water and, as tracer, 279 Dextran, distribution of, 218

Diabetes, hyperglycemic-glycogenolytic factor in, 401

Diabetes mellitus, aspirin and, 600

Diet

cholesterol absorption and, 302

copper, 652

islets of Langerhans and, 25

leukopenia, 385

Diuresis, osmotic, 572 Diurnal rhythm, 636

Dormancy, oxygen carrying capacity of blood during, 479

DRAGSTEDT, L. R., H. A. OBERHELMAN, JR., E. R. WOODWARD AND C. A. SMITH. Interrelation between the cephalic and gastric phases of gastric secretion, 7 DRAPER, W. B., 507

Drugs

adrenals and, 92

adrenocorticotrophic hormone, leucopenic effect of, 106

aspirin, 600

atropine and intestinal motility, 513
Banthine bromide and intestinal motility,

513 Bentyl hydrochloride, 513

cardiac contractility and, 174

corticotropin, 378

cortisone, 354, 381

Dibenamine, 482

epinephrine, 75, 78, 587 inflammation and, 545

muscle contractility and, 516

Nembutal, 22

Neo-Synephrine, 78

pentobarbital sodium, 22

Pitressin, 87

tetraethylammonium chloride and intestinal motility, 513

DUMM, MARY E., B. LAKEN, S. H. LESLIE AND ELAINE P. RALLI. Fractionation of biological activities of Pitressin, 87

DURY, A. Effect of intravenous glucose on tissue water and ionic content and moderation of potassium plethora with epinephrine and insulin pretreatment, 630

Dye, liver blood flow and bromsulfalein, 471

EDELMAN, I. S. Exchange of water between blood and tissues. Characteristics of deuterium oxide equilibration in body water, 279 EDGERLEY, R. H. Effect of x-irradiation on connective tissue ground substance in mice, 668

Electrical conduction in myelinated nerve, 140 Electrical responses of brain slices, 128

Electrical stimulation of metabolism of particulates, 134

Electrical stimulation of motor cortex, 436 Electrocardiograms of small mammals, 189

Electrocardiographic changes, anaphylactic re-

action and, 592 ELLIS, N. R., 22

Environment

radiation and cold, 349 red cell life span and, 465 Enzyme

hydrochloric acid secretion, 325 red cell estronase, 100

Eosinophil, insulin and epinephrine and, 636 Epinephrine

auricular muscle and, 516

blood glucose levels and, 636 kidney and, 169

kidney and *l*, 564 kidney and *l'*nor-, 564

output, 612 spleen and, 233

tolerance, 78

toxicity, 75 Essex, H. E., 75

Further observations on certain responses of tolerant and control animals to massive doses of epinephrine, 78

Esterase

in bone marrow, 48 cholesterol absorption, 302

Estrone, red cell activity, 100

Evans, J. D. Acetoacetate and esterase activity in normal rabbit bone marrow in vitro, 48 Extracellular fluid, mannitol and, 487

F<sub>AHL</sub>, J. C., 604

Fat

bone marrow and, 48 heparin and, 208 lipemia clearing factor, 492

FAVATI, V., 100

FERNÁNDEZ, M., L., 354

Fetus, placental transfer in, 678
Foà, P. P., Leonida Santamaria, Harriet R.
Weinstein, S. Berger and J. A. Smith.

Weinstein, S. Berger and J. A. Smith. Secretion of hyperglycemic-glycogenolytic factor in normal dogs, 32

Food intake

Nembutal and, 22 x-radiation and, 17 Fractionation of Pitressin, 87

FREEMAN, S., 114

FRITZ, I., 92

FRYERS, G. R. Effect of decreased atmospheric pressure on blood volume of rats, 459

FRYERS, G. R. AND N. I. BERLIN. Mean red cell life of rats exposed to reduced barometric pressure, 465

FUHRMAN, F. A. Inhibition of active sodium transport in isolated frog skin, 266

Gamble, J. L., Jr. and J. S. Robertson. Volume of distribution of radioactive chloride in dogs; comparisons with sodium, bromide and inulin spaces, 659

Gastric acid secretion, 1

cephalic and gastric phases of, 7

GELLER, H. M., 482

GERARD, R. W., 134

GERNANDT, B. E. AND C. A. THULIN. Vestibular connections of the brain stem, 121

GIARMAN, N. J., 174

GIRLING, F. Critical closing pressure and venous pressure, 204

Glomerular filtration rate, 578 mannitol and, 487

Glucocorticoid compounds, 381

Glucogenesis, 20

Glucose

potassium level of serum and, 630 x-radiation and, 668

Glycogenolytic factor, diabetes, in, 401

Glycolysis, acid secretion and, 1 Glycosuria, aspirin and, 600

Goldstein, M. S., E. R. Ramey, I. Fritz and R. Levine. Reversal of effects of stress in adrenalectomized animals by autonomic blocking agents. Use of atropine, Banthine and Dibenamine, 62

GOLLAN, F., P. BLOS AND H. SCHUMAN. Studies on hypothermia by means of a pump-oxygenator, 331

GRAY, C. L., 100

GREEN, ARDA A., 391 GREEN, D. M., 62

GREEN, J. P., N. J. GIARMAN AND W. T. SALTER. Combined effects of calcium and potassium on contractility and excitability of mammalian myocardium, 174

Growth hormone, adrenal cortex and, 587

GUBLER, C. J., M. E. LAHEY, G. E. CARTWRIGHT AND M. M. WINTROBE. Studies on copper metabolism. X. Factors influencing plasma copper level of albino rat, 652

GUSTAFSON, G. E. AND S. KOLETSKY. Nitrogen metabolism following whole body x-radiation, 319

H<sub>AIST, R. E., 25</sub>

Hanna, C. H., 499 Hansard, S. L., 678

Heart

anaphylactic reaction, 592 cardiac innervation, 178 cardiac output, 558 cardiac tissue respiration, 407

contractility, 174 electrocardiography, 189 excitability, 174

isotopic water in, 687 muscle contractility, 365 pressure, critical closing, 204 thyroid and, 407

venous inflow, 194

Heat exchange, blood flow in bladder, 554
Hellerstein, S., D. E. Holtkamp, Mary E.

HICKEY, R. M. HILL AND A. R. BUCHANAN.

Effect of hypothalamic extract on leucocytes of infant rats, 106

HEMPELMANN, L. H., 341

Henarin, 208

Heparin-produced lipemia clearing factor, 492

HERNANDEZ, H. H., 297

HERRIN, R. C., 412

HERROLD, MARCIA R., 487

HICKEY, MARY E., 107

HILL R. M., 106 HILTON, J. G., 164

HINES, J. R. AND S. FREEMAN. Effect of renal and parathyroid function on disappearance of intravenously injected calcium chloride,

HOAGLAND, H., 624

HOELTZENBEIN, J., 169

HOFF, H. E., C. G. BRECKENRIDGE AND W. A. SPENCER. Suprasegmental integration of cardiac innervation, 178

HOFFMAN, W. K., JR., 564

HOLLANDER, F., 325

HOLMES, J. H., 471

HOLTKAMP, D. E., 106

HUMMEL, F. P., 545 HUNT, CHARLOTTE A., 624

Hyperglycemia

anesthesia and, 37

insulin and, 32, 401 Hyperglycemic-glycogenolytic factor, 32

Hypertension

adrenal and experimental, 412 lipoprotein pattern and, 391

Hypothalamus, leucopenia and, 106

Hypophysectomy, work output and, 378 Hypophysis, influence on lung injury, 451

BARRA, J., 354

Inflammation, drugs and, 545

INGLE, D. J., J. E. NEZAMIS AND E. H. MORLEY. Effect of continuous intravenous administration of corticotropin upon work output of

hypophysectomized rats, 378 INGLE, D. J. AND R. C. MEEKS. Suppression of glycosuria during administration of large doses of aspirin to force-fed partially de-

pancreatectomized rat, 600 Insulin

blood glucose levels and, 636

hyperglycemia and, 401

hyperglycemic-glycogenolytic factor and,

potassium plethora and, 630

Intestine

breathing control and, 522

drugs and small, 513

Inulin

chloride space and volume of distribution

creatinine clearance and, 164

Islets of Langerhans, caloric insufficiency and, 25 Isotopes

chlorine radioactive, 650

radiocalcium, 641

radiocalcium and placental transfer, 678

tracers and sodium transport, 266

Isotopic water in perfused heart, 687

IVY, A. C., 302

Janakis, Mary, 487

JANOWITZ, H. D., H. COLCHER AND F. HOL-LANDER. Inhibition of gastric secretion of acid in dogs by carbonic anhydrase inhibitor, 2-acetylamino - 1,3,4-thiadiazole - 5-sulfona mide, 325

JOHNSON, J. A., 641

JOHNSON, J. A., H. M. CAVERT AND N. LIFSON. Kinetics concerned with distribution of isotopic water in isolated perfused dog heart and skeletal muscle, 687

KAGAN, A., 564

KATHERMAN, R. E., 100

KENNEDY, T. J., JR., J. G. HILTON AND R. W. BERLINER. Comparison of inulin and creatinine clearance in normal dog, 164

KERBEL, N. C., 25

Kidney

anoxia and, 499

calcium chloride and, 114

cardiac output, 558

denervated, 148

epinephrine and, 169 glucogenesis, 20

oligocythemia and, 159

KIM, K. S. AND A. C. IVY. Factors influencing

cholesterol absorption, 302 Kimeldorf, D. J. and B. D. Newsom. Survival of irradiated rats during prolonged exposure to environmental cold, 349

KING, ELLEN E. AND A. S. MARRAZZI. Limiting effect of adrenaline on output of adrenal medulla, 612

KOLETSKY, S., 319

LAHEY, M. E., 652

LAKEN, B., 87

LAWLER, C. A., 62

LESLIE, S. H., 87

Leucopenia, hypothalamic extract and, 106

Leukopenia, thyroid and, 385

LEVINE, R., 92

LEVY, M. N., 558, 564

LEVY, S. W., 208

LEWIS, LENA A., ARDA A. GREEN AND I. H. PAGE. Ultracentrifuge lipoprotein pattern of serum of normal, hypertensive and hypothyroid animals, 391

Lt, C. H., 587 LIENKE, R. I., 641 LIFSON, N., 687 LINDSLEY, D. L., 447 Lipemia clearing factor, 492 Lipoprotein, ultracentrifuge pattern, 391 alkaline phosphatase activity, 604 bile formation, 62 biosynthesis of, 55 blood flow, 471 LOMBARD, ELNA A. Electrocardiograms of small mammals, 189 injury and hypophysis, 451 nitrogen breathing and, 250 vascular bed pressure-volume, 238 Lymph flow, dextran and, 218

Mann, D. E., Jr., 636 Mannitol, glomerular filtration rate and, 487 MARRAZZI, A. S., 612 MARSHALL, LOUISE H., C. H. HANNA AND H. SPECHT. Renal function in dog during increased blood viscosity produced by simulated altitude exposure, 499 MATTHEWS, J. G., 245 MAYERSON, H. S., 218 McCarty, G. B., 245 McLewain, H. and S. Ochs. Absence of electrical responses of brain slices on in vitro stimulation, 128 MEEKS, R. C., 600 Metabolic effects of anesthesia, 37 Metabolism brain, 624 cholesterol, 297 copper, 652 particulate, 134

MIXTER, G., JR., 194
MORLEY, E. H., 378
Muscle
auricular, and epinephrine, 516
contractility of fibers, 359
contraction of heart, 365
corticotropin and work output, 378
cortisone and, 354
embryonic and adult difference, 257
isotopic water in, 687
smooth-, stimulating substance in urine, 371

MIKULICICH, G. AND Y. T. OESTER. Relation of

anaphylactic reaction to neurogenic factors,

Myelin, conduction in, 140 Myocardium contractility, 174

thyroid and cardiac, 407

Mineralo-corticoids, 587

502

NEGRETE, J., M., 354 NEHER, G. M., 636 mvelinated, 140 vestibular, 121 Nervous sytem, autonomic, 592 NEWSOM, B. D., 349 NEZAMIS, J. E., 378 NIMS, L. F. AND E. SUTTON. Weight changes and water composition of rats exposed to whole-body x-irradiation, 17 Nitrogen breathing, unilateral, 250 Nitrogen metabolism, x-radiation and, 310 NORTHUP, D. W., J. C. STICKNEY AND E. J. VAN LIERE. Effect of atropine, tetraethylammonium, Banthine and Bentyl on motility of small intestine, 513 Nutrition, islets of Langerhans and under-, 25

OBERHELMAN, H.-A., JR., 7 OCHS, S., 128, 134 OESTER, Y. T., 592 OGDEN, E., 487 Oligocythemia kidney and, 159 Oxygen carrying capacity of blood, 479 at high pressure, 451 Oxygen capacity diffusion respiration and, 507 spleen, epinephrine and, 233 Oxygen consumption adrenal cortex and, 624 glycolysis and, 1 sodium transport and, 266

Page, I. H., 391 PAGE, L. B. AND G. H. REEM. Urinary concentrating mechanism in the dog, 572 Pain sensitivity, sympathectomy and, 447 Palmer, J. G., G. E. Cartwright and M. M. WINTROBE. Experimental production of leukopenia in rats by thyroid feeding, 385 Particulate metabolism, 134 PARTRIDGE, M. H., 257 PENROD, K. E. Red cell volume, water content and oxygen capacity of blood expelled from spleen of dog by epinephrine, 233 PETERS, R. M. AND A. Roos. Effect of unilateral nitrogen breathing upon pulmonary blood flow, 250 Phosphatase activity, alkaline, 604 Phosphorus content of tissue, 257 Physico-chemical concepts, glomerular fluid rate, 578 Pituitary-adrenal system, 636

inflammation and, 545

Placental transfer, radiocalcium and, 678

PLUMLEE, M. P., S. L. HANSARD, C. L. COMAR AND W. M. BEESON. Placental transfer and deposition of labeled calcium in the developing bovine fetus, 678

Pneumococcus, lung injury induced by, 451 Portal vein pressure, elevated, 538

Potassium

cardiac contractility and excitability and, 174

growth hormone and, 587 level of serum, 630

Potential, monophasic action, 516

PRATT, E. B., F. C. BURDICK AND J. H. HOLMES. Measurement of liver blood flow in unanesthetized dog using the bromsulfalein dye method, 471

PREMER, M. L., 641

Pressor substance in urine, 371

Pressure

filtration, glomerular fluid rate and, 578 mean red cell life and barometric, 465 Pressure-volume relationships in vascular bed,

Pump-oxygenator, cold and, 331

## Radiation

cold and, 341, 349

connective tissue and, 668

nitrogen metabolism and, 319

weight changes and water consumption and,

RALLI, ELAINE P., 87

RAMEY, E. R., 92

RAYBURN, C. J., 507

REEM, G. H., 572

Reflex arcs, vestibular, 121

Reflex chemical control of breathing, 522 REINECKE, R. M. Renal glucogenesis in evis-

cerated monkey (Macaca mulatta), 29

Respiration

bulbar reticular formation, 417

diffusion, 507 dormancy and, 479

nitrogen, unilateral, 250

reflex chemical control of, 522

thyroid and, 407

venous inflow during, 194

ROBB, JANE S. Concerning contraction of heart muscle, 365

ROBERTSON, J. S., 659

Roos, A., 250

ROOT, W. S., 554

ROSENBERG, B., 636

ROSENTHAL, O., J. C. FAHL AND H. M. VARS. Qualitative and quantitative changes in alkaline phosphatase activity of regenerating rat liver, 604

SAKA, M. O. Hyperglycemic-glycogenolytic factor in diabetic man and alloxan-diabetic animals, 401

Salicylate

glycosuria and, 600

inflammation and, 545 Saltatory conduction, 140

SALTER, W. T., 174

SANTAMARIA, LEONIDA, 32

SAPIRSTEIN, L. A., MARCIA R. HERROLD, MARY JANAKIS AND E. OGDEN. Validity of values for glomerular filtration rate and extracellular fluid obtained from plasma concentrationtime decay curves after single injections of mannitol in dog, 487

SARNOFF, S. J. AND E. BERGLUND. Pressurevolume characteristics and stress relaxation in the pulmonary vascular bed of the dog, 238

SCHUMAN, H., 331

SCHWENK, E., 55

SELYE, H. Prevention of cortisone overdosage effects with somatotrophic hormone (STH),

Sex, toxicity of drugs and, 75

SHARE, L., 194

Primary effects of acute oligocythemia on renal function, 159

Shock

blood volume in, 538

hemorrhagic, 482

SIEGEL, P. S. AND N. R. ELLIS. Immediate effect of small dosages of pentobarbital sodium upon food intake of rat, 22

SINGER, L., 641

SIPERSTEIN, M. D., H. H. HERNANDEZ AND I. L. CHAIKOFF. Enterohepatic circulation of carbon 4 of cholesterol, 297

Skeleton, calcium and sodium turnover by, 641 Skin, sodium transport in, 266

SMITH, C. A., 7

SMITH, D. J. Constriction of isolated arteries and their vasa vasorum produced by low temperatures, 528

SMITH, J. A., 32

Sodium

chloride space and, 659

epinephrine and reabsorption, of, 564

growth hormone and, 587

hypertension and concentration, 412 transcapillary movement of, 641

transport, 266

Sodium excretion

cardiac output and, 558 kidney, denervated, in, 148

Solute, urine flow and, 572

Somatic reticular facilitatory formation, 417

Somatotrophic hormone, 381

SPECHT, H., 499

SPENCER, W. A., 178

Spitzer, J. J. Properties of heparin-produced lipemia clearing factor, 492

Splanchnic nerve, kidney and, 148 Spleen, hemoglobin content of, 233

STEIN, J. D., JR., L. L. BENNETT, ADRIENNE A.
BATTS AND C. H. Li. Sodium, potassium and
chloride retention produced by growth hormone in absence of adrenals, 587

STICKNEY, J. C., 513

Stimulation of brain slices, 128

Stomach

acid secretion, 1, 325 gastric secretion, 7

STORER, J. B. AND L. H. HEMPELMANN. Hypothermia and increased survival rate of infant mice irradiated with x-rays, 341

Stress, adrenal cortex and, 92

Stress relaxation, lung vascular bed, in, 238

Substance U, a depressor, 371

Sugar in kidney vein, 29

Superior cava system, collapse of, 194

Suprasegmental integration of cardiac innervation, 178

Surtshin, A. and J. Hoeltzenbein. Effect of chronic denervation on response of renal vessels to epinephrine, 169

Survival rate, radiation and, 341

SUTTON, E., 17

SVIHLA, A. AND H. C. BOWMAN. Oxygen carrying capacity of the blood of dormant ground squirrels, 479

SWANK, R. L. AND S. W. LEVY. Chylomicron dissolution. Dosage and site of action of heparin, 208

Sympathectomy, pain sensitivity and, 447 Synaptic transmission, epinephrine and, 612

SZEPSENWOL, J. AND M. H. PARTRIGGE. Phosphorus content of various tissues of chick embryo. 257

Temperature

anoxia and, 331 isolated arteries and low, 528 radiation and, 349

Thiocyanate space, diffusion respiration and,

THULIN. C. A., 121

Thyroid

hypo-, lipoprotein pattern and, 391 leukopenia and, 385

respiration and, 407

Thyroparathyroid, calcium chloride and, 114 Tissue

cells and transcapillary exchange, 687 glucose and water, 630 phosphorus content of, 257 water exchange between blood and, 279 X-ray and connective, 668

Toxicity

cortisone overdosage, 381 cyanide poisoning, 604 epinephrine, 75

Transcapillary movement of calcium and sodium, 641

Tubular reabsorption of sodium, 564

Ulcer, duodenal, 7

ULLRICK, W. C. AND W. V. WHITEHORN. Influence of thyroid hormone on respiration of cardiac tissue, 407

Ungar, G., E. Damgaard and F. P. Hummel. Action of salicylates and related drugs in inflammation, 545

Urine

depressor and smooth-muscle stimulating substance in, 371 dextran and, 218 flow, 572

Uterus, anoxia effects on, 245

Vagus nerve, stomach, 7 VAN HARREVELD, A., 140

VAN HARREVELD, A. AND D. L. LINDSLEY, Afferent innervation of blood vessels in body wall, 447

VAN LIERE, E. J., 513

VAN LIERE, E. J., G. B. McCarty and J. G. Matthews. Effect of hypoxia and anemic anoxia on uterus, 245 Vars, H. M., 604 Vasomotor control, source of, 417

Vein pressure, elevated portal, 538 Vestibular connections of brain stem, 121

Wasserman, K. and H. S. Mayerson. Plasma, lymph and urine studies after dextran infusions, 218

Water

content of spleen, 233 D<sub>2</sub>O delivery, 687 exchange between blood and tissues, 279 X-radiation and consumption, 17

Weight

body, islets of Langerhans and, 25 body, pentobarbital sodium and, 22 body, X-radiation and, 17 X-radiation and, 310

WEINSTEIN, HARRIET R., 32

WERTHESSEN, N. T. AND E. SCHWENK. Biosynthesis of cholesterol. Factors regulating biosynthesis of cholesterol-like substances in isolated whole livers, 55

WHITEHEAD, R. W., 507

Whitehorn, W. V., 407 Wintrobe, M. M., 385, 652 Wolfgram, F. J. and A. van Harreveld. Modes of conduction in myelinated nerve, 140 Woodward, E. R., 7 Work output, corticotropin and, 378

X-rays cold and, 341, 349 connective tissue and, 668 nitrogen metabolism and, 319 weight changes and water consumption and, 17

Zanetti, Mary E. Significance of elevated portal vein pressure in etiology of hemorrhagic shock, 538

rhagic shock, 538

ZARROW, M. X., M. E. DENISON, B. ROSENBERG,
D. E. MANN, JR. AND G. M. NEHER. Effect
of insulin and epinephrine on eosinophil and
blood glucose levels in sheep; lack of diurnal
rhythm, 636